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CAUSAL ATTRIBUTION FOR THE PERFORMANCE OF SELF AND OTHERS AS A FUNCTION OF LOCUS-OF-CONTROL, OBSERVER EMPATHY AND SUCCESS-FAILURE.

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CAUSAL ATTRIBUTION FOR THE PERFORMANCE OF SELF AND OTHERS AS A FUNCTION OF LOCUS OF CONTROL, OBSERVER EMPATHY AND SUCCESS-FAILURE

By

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ABSTRACT

Male internal and external control subjects were presented with a 10-item anagram test in one of three conditions. Subjects in group one completed the anagrams test and were then asked to make attributions for their own performance on the test. Subjects in group two completed the anagrams test and were asked to make attributions for the test performance of others of the same sex, age, and grade level as themselves. Group three subjects were only given a description of the anagrams test and did not actually complete it. They were then asked to make attributions for the test performance of others as in group two. It was presumed that as a result of manipulating anagram test experience group two subjects would feel more empathy than group three subjects toward the others whose performance they were asked to explain. Subjects made performance attributions by placing an "x" on separate linear scales - one for each of ability, effort, luck, and task difficulty attribution components. Subjects also made subjective short answer attributions for performance on an exam and in a game situation. Results showed no relationship between locus of control and performance attribution. However, attributions of subjects in groups one and two were significantly more impersonal or external than the attributions of subjects in group three. Differences between the two groups were reflected in attributions to the personal factors of ability and effort. Subjective exam and game attributions generally did not reflect differences between the various groups. Results were discussed in terms of cognitive processing, social learning theory, balance theory, subject population characteristics, and reinforcement value of the anagrams test.

PREFACE

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TABLE OF CONTENTS

LIST OF TABLES

Chapter-I

INTRODUCTION-

It has been demonstrated that the principles of instrumental learning can explain much about human behaviour. A behaviour which has been reinforced is more likely to be repeated than one which has not been reinforced. Such laws of learning have been applied to both animal and human subjects. However, with humans, what is apparently a mechanistic process is probably mediated by cognitive processes which lead an actor to attribute the reinforcement he receives either to his own personal efforts or characteristics, or to environmental circumstances such as luck or powerful others. It seems reasonable that a reinforcement seen to accrue as the result of personal effort or ability is more likely to lead to increased responding than a reinforcement seen as resultant from external or environmental forces. Thus, the locus of causality to which behaviour is attributed - personal or internal versus impersonal or external - can be expected to play, along with other attendant cognitive processes, an important part in human learning.

The situation becomes even more complex when an observer-model paradigm (Bandura & Walters, 1963) is considered. Here the vicarious positive or negative reinforcement of a model has been shown to increase or decrease respectively the probability of response of an observer. It has been pointed out that the attributed locus of causality of an actor's reinforcement can be expected to affect his future behaviour. By analogy, the extent to which an individual's future behaviour is influenced by observing the behaviour and subsequent reinforcement of

a model may depend on whether the reinforcement is attributed to the model's personal efforts and/or ability (a personal or internal attribution) or to environmental factors (an impersonal or external attribution). The purpose of this study is to examine the relative effect of personality factors (specifically, perceived locus of control), cognitive processes, and motivational influences as they relate to the attribution of causality for the outcome of the behaviour of self and others.

A Cognitive Approach

Jones and Nisbett (1971) claim that the perception of the cause of one's own behaviour is divergent from the perception of the cause of the behaviour of others. Specifically, these authors contend that actors tend to attribute the cause of their own behaviour to stimuli inherent in the situation while observers tend to attribute behaviour to the stable dispositions of the actor they have observed. Jones and Nisbett outline several reasons for these divergent perceptions of causality.

A first reason is that the information available to an actor is different from that available to an observer. Both can have equivalent information about the nature of the act and it's environmental outcomes (effect data) but the observer can have no direct knowledge of the experiential accompaniments of the act for the actor. The observer can only infer how the actor feels about the behaviour on the basis of physiognomic (eg., a flushed face) and gestural cues. In addition, the observer may assume that the actor's feelings are similar to what others usually experience in comparable situations - a modal inference.

There will also be actor-observer differences in the amount of information that is available on the cause of the behaviour. Both the actor and the observer can be aware of the immediate environmental stimuli. However, the actor's past history, feeling states, and intentions which led up to the act will likely not be known to the observer.

Finally, information about the actor's general behavioural history will usually not be available to the observer. An observer may believe that an actor who behaves in an insulting fashion has a tendency across situations to be insulting. The actor, on the other hand, may feel that his insulting behaviour is atypical and the result of specific situational factors. Thus, because the actor has more complete information as to the effect and cause of his behaviour as well as a detailed history of his own typical pattern of behaviour, he will tend to see any specific act to be the result of unique environmental stimuli, eg., "The situation caused me to be unusually insulting." The observer, on the other hand, must compensate for his paucity of knowledge about the actor's behaviour by making modal inferences leading to dispositional attributions, eg., "The actor is an insulting person."

A second reason for divergent perceptions of the causes of behaviour stems from differences in information processing. Jones and Nisbett believe that different aspects of the available information are salient for actors and observers and that this differential salience affects the outcome of the attribution process.

An important feature of the behavioural situation is that the action itself, it's topography, rhythm, style, and content, is more

salient to the observer than the actor. From the observer's point of view, the environment in which the action takes place is stable and contextual. Therefore, for the observer, the action takes on figural properties against the background of the environment. Conversely, the actor does not focus his attention on his own behaviour. His sense receptors are poorly located to notice behavioural nuances; nor is there a need to do so, as much of his action is preprogrammed or previously learned. Instead the actor directs his attention toward the environment and it's constantly changing stimuli.

According to Jones and Nisbett:

> "These attentional differences should result in differences in causal perception. The actor should perceive his behaviour to be a response to environmental cues that trigger, guide, and terminate it. But for the observer, the focal commanding stimulus is the actor's behaviour and situational cues are to a degree ignored. This leaves the actor as the likely causal candidate, and the observer will account for the actor's responses in terms of attributed dispositions." (Jones & Nisbett, 1971, p. 7)

These tendencies towards differences in attribution are amplified by the tendency to regard any reactions to entities as based on accurate perceptions of them. This can be illustrated with reference to the difference between what philosophers call primary and secondary properties of entities. Primary properties include bulk, shape, mass, and motion of an object which are believed to exist apart from any perception of the object. On the other hand, secondary properties such as taste, odour, sound, and smell are dependent for their existence upon transactions with the human being's sense organs and, therefore, do not exist alone as qualities of the object. However, because there is generally a high

degree of interindividual consensus regarding the perception of secondary qualities, for practical purposes the primary-secondary distinction is neither required nor made and the secondary qualities are seen as inherent in the entity apart from the perceptual process.

Similarly, because there is a considerable degree of consensus for most subjective evaluations, we begin to believe that our evaluations have primary qualities. Heider (1958) refers to this as egocentric attribution. He states the "Attribution to the object means more than the dependence of p's pleasure on the object. It also means that there is something enjoyable about the object. The attractiveness is a quality of the object." (Heider, 1958, p. 158).

Consequently, the actor will attribute his behaviour not merely to his personal perception of the environmental stimuli, but to the perceived actual qualities of the environment (attraction, compulsions, restraints). Similarly, the observer will tend to see his evaluation of the actor's behaviour as personal dispositions in the actor's character. Two biases therefore at work in processing information necessary to make attribution: the first is the differential salience of behavioural versus environmental stimuli; the second is the tendency to regard evaluations of the environment or behaviour as objective fact rather than subjective perception. The end result is that the actor will overattribute his behaviour to environmental sources and the observer will overattribute behaviour to the qualities of the actor.

Research Supporting the Cognitive Approach

There are at least a few studies which offer support for the Jones

and Nisbett (1971) cognitive approach. Not all studies deal with attributions of both the actor and observer, nor were all the studies designed specifically to test the propositions described above.

Jones, Rock, Shaver, Goethals, and Ward (1968) carried out a series of six experiments which focused on inferences about ability drawn from observer performance. Of particular interest was the role of various temporal patterns of success-failure over a series of intellectual problems. Specifically, the study was designed to see if more ability would be attributed as a function of whether a performer did increasingly well, increasingly poorly, or spread his success and failure evenly throughout the trials, assuming that the total number of correct solutions was always held constant.

The performance test used was a 30-item test purportedly designed to 'discriminate at the very highest levels of intelligence' although, unknown to the subject, only one third of the items actually had reasonable solutions. In the first part of the experimental procedure, both the performer and the subject completed the intelligence test or, as a variation, the subject was required only to predict the performer's score on each item. In the second part of the procedure, additional items were presented and the subjects were asked to predict whether or not the performer would succeed or fail on each item. The performer, a confederate, was either personally present or appeared in a sound film. At the conclusion of the second part of the procedure, the subjects, both male and female undergraduate students, completed a questionnaire containing a rating of the performer's intelligence. It

was assumed that the experimental task would create the impression of a high level of difficulty and that a high level of performance motivation was present. Thus ability (intelligence and facilitating tempermental factors) and luck (not measured) were the two most likely factors (Heider, 1958) remaining to explain performance, with ability the more likely candidate of the two.

Jones et al. interpreted their data as evidence of a strong primacy effect in the attribution of the ability of a performer; early information was weighed more heavily and later information was essentially ignored. Thus, a performer who solved more problems at the beginning of the test was perceived as more intelligent than one who solved relatively more items at the end of the test. Further, the subject held a higher performance expectation for the future quality of the performance of a performer who did well initially as compared to a performer who did well only later. Thus, the subject (the observer) attributed the confederate's performance to the latter's personal qualities, particularly intelligence.

In the sixth of the series of experiments, the subject was also asked to predict his own performance as well as that of the performer. It was found that when the subject was predicting his own performance, the primacy effect became a recency effect. Subjects who performed better on the latter part of the test predicted that they themselves would perform better on future items than did subjects who performed best early in the test. The former subjects believed items got easier as they went along while the latter subjects perceived the items as becoming

increasingly difficult. Thus, when predicting their own performance, subjects attributed performance to the environment (the changing difficulty of the test items) and, as would be expected, their perception of their own intellectual ability remained stable across conditions.

A second group of experiments carried out by Jones and Harris (1967) supported the proposition that observers are inclined to see the behaviour of others in dispositional terms. These experiments were based on predictions derived from a theory of correspondent inferences (Jones & Davis, 1965) concerning the derivation of information about dispositions from observed facts. According to the theory, an inference about an observed fact is correspondent to the extent that the underlying attitude or disposition and a sample of observed behaviour are similarly described by the inference and "the attitude serves as a sufficient explanation for the behaviour" (Jones and Harris, 1967, p. 2). A sufficient explanation is one that accounts for the occurences of the act to the reasonable satisfaction of the perceiver.

The particular hypothesis which this series of experiments sought to test was - when a person expresses a modal (high probability) opinion, attribution of an underlying attitude will not vary as a function of perceived choice; but, when an unexpected or unpopular opinion is expressed, correspondent attribution will vary directly with the amount of choice perceived. In other words, if an individual was to express an unexpected opinion, the extent to which his opinion would be seen to reflect his underlying attitude would vary directly with the amount of freedom he was perceived to have in stating the opinion. Thus, the

subject's task was to estimate the true attitude of the person making the opinion statements under conditions of high versus low perceived choice.

Male and female introductory psychology students served as subjects. In the first experiment, subjects were required to estimate a target person's attitude after reading a pro- or anti-Castro essay supposedly written as an answer on a political science exam. Some subjects were led to believe that the target person had no choice as to whether the essay was pro- or anti-Castro while other subjects were led to believe that the target person was free to choose which essay to write. The format of the second experiment paralleled the first except that the Castro statements were presented as being opening statements in a college debate where the debater was either assigned to the pro- or anti-Castro side or was given a choice of sides. In the third experiment, subjects were exposed to tape recorded speeches for or against segregation delivered by persons who supposedly did or did not have prior choice as to which speech they made.

Overall, questionnaire responses showed that subjects were aware of the extent to which the author of the various statements was forced or free to choose the opinions expressed. In general, although with some exceptions, the major experimental hypothesis stated above was confirmed. However, more important for present purposes, while subjects did take account of degree of choice and prior probability, they also gave substantial weight to the intrinsic or 'face value' meaning of the

act (making the statement) itself in their attribution of attitude. Across conditions, if the communicator had expressed a 'pro' position, subjects assumed his underlying attitude was pro, and if the communicator assumed an 'anti' position, subjects assumed his underlying attitude was anti. Jones and Harris note that this agrees with Heider's (1958) statement to the effect that there is a common tendency to assign too little significance to the determining context of action in social perception.

Jones and Nisbett (1971) offer these results as support for their hypothesis that an observer tends to assign dispositional properties to an actor on the basis of his behaviour while putting less weight on the environmental stimuli or surrounding circumstances causing the behaviour. McArthur (1970) provided additional support for this tendency among observers.

McArthur's subjects were presented with one sentence descriptions of an action such as "George translates the sentence incorrectly," "While dancing, Ralph trips over Jane's feet," or "Steve puts a bumper sticker advocating improved automobile safety on his car." (Jones & Nisbett, 1971, p. 3). Subjects were then asked why this action probably occurred - whether it was something about the person that caused him to act in this way, or something about the stimulus, or some other reason.

Results showed that the greatest proportion of reasons given for the actions was in the form of <u>pure person attribution</u> such as George translates the sentence incorrectly because he is rather poor at translating sentences or, Steve is the sort who puts bumper stickers on

his car. Jones and Nisbett claim that it would not be unreasonable to expect a random sample of subjects to explain the actions described in the statements using pure stimulus attributions or both stimulus and circumstance attributions together. Therefore, the fact that, contrary to expectation, subjects tended to use pure person attributions is claimed as evidence supporting the belief that observers tend to make person attributions to explain the behaviour of others.

In a second experiment (McArthur, 1970), actor-subjects were induced to perform a particular act. A written account describing these actor subjects and the circumstances surrounding their induced actions was presented to observer-subjects. Therefore it was possible to compare the attributions of actor-subjects with the attributions of observer subjects. The action involved was participation in a survey concerning interpersonal relations. Results supporting Jones and Nisbett showed that actor-subjects were inclined to attribute their behaviour primarily to the importance of the survey (an environmental attribution) while observer subjects attributed participation primarily to a personal inclination to take part in surveys.

Nisbett and Caputo (1971) have also obtained data on the attributional behaviour of both actors and observers. College student subjects were asked either why they themselves had chosen their major field of concentration and why they liked the girl they dated most frequently or why their best friend had done so. When the responses which were in paragraph form were coded into either person or stimulus attributions, data were generally in accord with the Jones and Nisbett expectations.

When asked for himself, a subject listed almost equal amounts of person or stimulus attributions as reasons for choosing his major and twice as many stimulus as person reasons for choosing his girl friend. When answering for his friend, a subject listed approximately three times as many person as stimulus reasons for choosing his major, and an approximately equal number of person and stimulus reasons for choosing his girl friend. Further, for either action, subjects were more likely to use dispositional language for their friends than for themselves.

In a final study, Nisbett, Legant, and Marecek (1971), using Yale coeds, allowed observer-subjects to watch actor-subjects in a controlled laboratory setting. The experimenter solicited the help of the actor-subjects and two confederates as paid volunteers (rates of pay varied from $.50 to $1.50) for a future project at the Yale 'Human Development Institute'. The amount of money offered was designed to be an extrinsic factor affecting the rate of compliance. Observer- and actor-subjects were then asked, among other questions concerning the reasons for volunteering, how likely it was that they would volunteer to canvas for the United Fund. Observers of volunteer actors thought that the actor would be more likely to volunteer to canvas than did observers of non-volunteer actors. This implied that volunteering was a disposition of the actor revealed by his behaviour in the experiment. On the other hand, actors themselves who had volunteered in the experiment did not indicate any greater liklihood of volunteering to canvas than actors who had not volunteered in the experiment. This implied that they felt that their volunteering behaviour would depend on the situation when

it arose. In summary, then, the research outlined supports the Jones and Nisbett (1971) contention that actors make external or impersonal attributions for their behaviour and that observers make personal or internal attributions for the behaviour of others whom they view.

While there is a good deal of research supporting the Jones and Nisbett approach, there are at least three studies which suggest that their formulation is incomplete and must be extended to cover other variables. Miller and Norman (1975) considered two distinct types of observer, the active observer, and the passive observer. Passive observers were those who listened to an experimenter announce the moves and points in a Prisoner's Dilemma (PD) game. Active observers actually played a PD game, in which, unknown to them, the moves of the alleged second player (Player B) were actually controlled by the experimenter. Miller and Norman considered active observers to be equivalent to actors in the game situation. All subjects were female students enrolled in introductory psychology. Contrary to the Jones and Nisbett hypothesis, results indicated that actors (active observers) saw more personal dispositions in their own behaviour and attributed more behavioural responsibility to themselves than did observers. Miller and Norman suggested that these actor-observer differences were mediated by an actor's need to see himself as free and exercising effective control over his environment.

In addition actor-observer differences, there were differences in the perceptions which active and passive observer held of the Player B, the alleged second player. Active observers attributed

more causal responsibility to Player B than did passive observers. It was suggested that these differences in attribution were related to the role requirements of the active observer. It was assumed that if an active observer as compared to a passive observer had a great need to feel he was exercising control over the situation, it would also be more important for the active observer to feel he had personal knowledge of Player B - knowledge which would allow the active observer to maintain control. Thus, according to Miller and Norman, feelings of personal efficacy and degree of observer involvement in a situation mediate the cognitive processes outlined by Jones and Nisbett.

In the second study, Wolfson and Salancik (1975) used a scale model road racing set and obtained attributions from a driver (the operator of the racetrack) and from both neutral and involved observers. Neutral observers were asked to observe the operation of the racetrack but did not expect to operate it themselves. Involved observers also watched the operation of the racetrack but with the expection that they themselves would eventually be requested to act as drivers and operate the set. All subjects were male undergraduates and driver performance was manipulated to be uniformly poor. Attributions for performance were made with respect to the factors of ability, effort, luck and task difficulty. Major differences in attribution occurred with regard to the task difficulty (a stable or non-varying factor) and chance (an unstable or varying factor). The neutral observers attributed the driver's poor performance mainly to bad luck rather than task difficulty. The involved observers made more ascriptions to task difficulty than

to chance. Finally, drivers tended to make slightly greater attribution to bad luck than to task difficulty and thus fell between the neutral and involved observer groups in their attributions along a stable-unstable dimension. Results therefore confirmed the Jones and Nisbett expectation of differences in attribution between actors and observers. However, results also suggested that it is necessary to distinguish between types of observers on the basis of involvement in the situation. Also, while Jones and Nisbett differentiate attributions on an internal-external dimension, the Wolfson and Salancik study found significance only on a stable-unstable dimension.

In the third study, Medway, Lowe, and Baron (1975) administered a 28-item scale to both male and female college students. Scale items were worded to describe the achievement related successes and failures of either one's self, a nonspecific neutral other, a liked other such as a best friend, or a disliked other. Subjects were asked to make causal attributions for the performances described. Results demonstrated that subjects tended to credit others more than themselves for success and blame others less than themselves for failure. Particularly interesting was the observation that there was some evidence for these tendencies to be accentuated for liked others and reversed for disliked others. Apparently the self-other attribution dichotomy proposed by Jones and Nisbett was mediated by the degree of liking for the other and by whether the outcome described was one of success or failure. These results combined with those of Miller and Norman (1975) and Wolfson and Salancik (1975) suggest that the Jones and Nisbett formulation is

incomplete as it fails to adequately predict results in more complex self-other attribution situations. Factors other than the simple identification of self versus other need to be considered in the model. Examples of such additional factors derived from the above studies were the involvement of the observer in the situation, role requirements of the involved observer, the outcome of the behaviour, and the relation of the actor to the observer.

A Trait Approach to Attribution

Jones and Nisbett suggest that while a cognitive approach to attribution can explain a great deal, a personality trait approach is of little value. They claim that our belief in explanations of behaviour based on purported relationships between enduring personal qualities and observed behaviour is over-emphasized and that the view of personality as a collection of traits persists because of several biases. Two of these biases have already been mentioned: 1) the information processing biases that conspire to make behaviour appear to be a manifestation or quality of the actor, and 2) the informational deficit of the observer, particularly as regards the actor's behavioural history, which prevents disconfirmation of the trait inference.

An additional factor is sampling bias produced by roles and situation. An observer is usually unable to get a random sample of the actor's behaviour. Rather, opportunities for observer-actor

interaction are limited both in the number of interactions and the number of roles required in those interactions. Because the observer views only a small sample of behaviour, and because that behaviour shows consistency due to similarities in role and situational demand characteristics, the observer incorrectly believes that the behaviour he sees is a manifestation of a major character trait. In fact, according to Jones and Nisbett, if the behaviour sample were more complete, the prepotence of situational and role variance would become evident.

Another distinct although similar reason for the perseverance of the personality trait explanation is the fact that the observer consistently uses only a limited number of the behaviours in his repetoire when in any relationship with the actor. Conversely, this limited stimulus value of the observer's behaviour evokes only a limited sample of the actor's potential behaviour. Again, weight is added to the observer's spurious perception that the actor's behaviour is consistent.

Two additional biases that result in an over-emphasis on traits are 1) information processing bias, and 2) linguistic bias. Information processing biases are exemplified by cognitive consistency theory. Jones and Nisbett point out that all the cognitive mechanisms of inconsistency reduction can be put to work in the service of dispositional account of action. A tendency to see consistency in action is only a step away from attribution of such consistency to underlying

dispositions.

Linguistic biases derive from our vocabularies which are rich in trait terminology and also from the fact that our grammar allows the same term to be applied to behaviour and it's underlying disposition.

To add weight to the arguement against traits, Mischel (1968) examined efforts to predict behaviour on the basis of personality traits. While there may be some basis for correlation between predictor and criterion when both are paper and pencil tests in similar situations, Mischel claims to have found little generality of traits for different manifestations of behaviour (such as stealing versus cheating on a written exam as manifestations of dishonesty) across a variety of situations.

Mischel offers four reasons for his criticism of trait theory. First, he notes that trait psychology, after several decades in a quest for a universal taxonomy of traits, has produced data which is often more relevant to the rater's categories than to the ratee's behaviour. For example, Mischel notes that Cattell (1947, 1957), working with 4,504 trait names culled from an 18,000 trait name list (Allport & Odbert, 1936) used judgments of 'just distinguishable' differences in semantic meaning to further reduce these items to 171 items or 'synonym groups'. Ratings obtained from these "trait elements" were then correlated and submitted to cluster analysis, yielding 36 clusters which were in turn converted into bipolar descriptions and named the "standard personality sphere" rating scales. A series of sophisticated and extensive factor

analytic studies then investigated the degree of factor similarity obtained from diverse samples of subjects rated by, and well known to their peers on scales drawn from a version of the reduced personality sphere (Norman, 1961, 1963; Tupes & Christal, 1958, 1961). Consistently, the same set of five orthogonal factors appeared, leading to the conclusion that a highly stable structure of personality characteristics had been identified. This conclusion rested on the assumption that "The structure obtained reflected the organization of these attributes in the ratees" (Passini & Norman, 1966, p.44).

However, in a subsequent study, judges rated college students who were complete strangers to them after less than 15 minutes observation during which there was no opportunity for verbal communication. Of great interest was the fact that the factor structure which emerged from these ratings of complete strangers was highly similar to the five factor structure which emerged when subjects were well known to the raters. When strangers were rated, the main information available to the raters was whatever the latter carried around in their heads. That such information led to emergent factors similar to data from well known ratees leads Mischel (1968) to conclude that the five factor trait structure developed by sophisticated means reflected observers constructs rather than empirically derived personality structure observable in the external world. The factor structure told more about the observers' semantic and conceptual system than about the ratees'. Mischel offers a second objection to personality trait theory based on a factor analytic approach. He claims that some investigators try to arrive at pure measures of underlying discrete psychological traits

through factor analysis which they hope will isolate basic traits in individuals. Mischel notes, however, that the results depend on the items and subjects selected by the reseacher and on the details of his factorial procedures and decisions. While acknowledging that factor analysis will distill an unmanageable number of variables into relatively homogenous clusters, he objects to the assumption that these clusters represent real characteristics or primary dimensions of the things being measured. To support this objection, Mischel notes that Overall (1964) factor analyzed the physical dimensions of books (length, width, height) and that the resultant factors represented not the three primary physical dimensions, but were highly complex with regard to them. The three factors which emerged represented concepts something like size, obesity, and squareness. Thus, factor analysis may sometimes fail to produce factors corresponding to primary dimensions of a structure being studied and, unlike the case of a physical object such as a book, personality theory has no certain way of comparing factor analytically derived dimensions with the 'real' dimensions of personality.

Psychometric assessment of trait constructs attempts to get around the problem of whether factors derived are the constructs of the rater or the ratee by using objective, standardized paper and pencil tests completed by the subject himself and scored objectively in an easily reproduceable manner. However, many of the problems of bias in item choice and submission of the resultant data to factor analysis obtain. In addition, Mischel offers a third objection to the personality trait approach. Although the stimulus items are the same

for each person, he claims that the stimulus referents are vague and the answers are therefore often more relevant to the respondent's personal interpretation than to his actual nontest behaviour. Further, this ambiguity associated with the test items leads to between subjects variability of sufficient magnitude to allow evocation of the investigator's constructs from the subject's responses.

Mischel's fourth indictment of personality trait theory is perhaps the most damaging and has been suggested above. Specifically, Mischel notes that observers may employ highly objective (clearly reproducible) steps to arrive at shared and reliable conclusions about behaviour on personality tests, but these conclusions most often do not correspond with the subject's behaviour in nontest situations. It is this relationship between the constructs which the theorist measures in the subject and the independent behaviour of the subject which is the strongest test of the personality trait approach.

Jones and Nisbett begin by lamenting the under emphasis of situational factors in the etiology of behaviour and offer their own and Mischel's arguements to support a call for cautious, skeptical use of trait theory as an explanation. However, the reader is left with the impression that they would deemphasize trait theory to the place of a relatively useless artifact for the neonatal stages of the science of psychology. Certainly their arguements are persuasive. Yet, there is some evidence that the trait concept does have a place in attribution theory.

The concept of internal-external (I-E) locus of control developed

by Rotter (1966) can be usefully conceived of as a personality trait. Perceived locus of control is a socially learned generalized disposition to behave in a certain way across situations. The particular generalized behaviour takes the form of an expectancy, which is the probability held by the individual that a particular reinforcement will be seen to be a consequence of a particular behaviour on his part. Internal control refers to a subject's perception that his own actions or his relatively permanent personal characteristics have been instrumental in achieving the reinforcements he receives. External control refers to a subject's perception that the reinforcements he receives are a product of luck, chance, or powerful others.

Rotter (1966) developed the concept of I-E control on the basis of social learning theory which involves the concepts of expectancy and reinforcement. A reinforcement is seen as strengthening the expectancy that a particular behaviour or event will be followed by that reinforcement on a subsequent occasion. The basic formula for any behaviour involves three constructs: (1) behaviour potential, which is the potentiality that any given behaviour will occur in a particular situation in relation to a particular reinforcement; (2) expectancy, as defined above; and, (3) reinforcement value, defined as the degree of preference for a reinforcement to occur if the possibilities of the occurrence of this and other reinforcements were equal. The following formula (Rotter, 1955) illustrates the way in which these constructs are related:

$$B.P._{x,\ S_1, R_a,} = f\ (\ E_{x,\ R_a, S_1,} + R.V._{a, S_1}\ )$$

The verbal interpretation is that the potential for behaviour x to occur in situation 1 in relation to reinforcement a is a function of the expectancy of the occurrence of reinforcement a following behaviour x in situation 1, and the value of reinforcement a in situation 1.

It is clear from the formula that expectancy plays a major role in determining whether or not a specific behaviour in a specific situation will occur. Beginning in infancy, an individual increasingly differentiates among events which are causally related to his preceeding activity and those which are not. It follows from this that since individual reinforcement histories will vary, the extent to which an individual will come to attribute reinforcement to his own actions will also vary. Situation S also plays an important role in reinforcement history since particular situational cues will come to be related to the expectancy that a behaviour x will lead to reinforcement a.

As a consequence of a process of stimulus generalization, the extent to which an individual attributes reinforcement to his own action will generalize across similar situations which provide similar cues. Thus, the potential for the development of a generalized expectancy along the I-E control dimension is clear.

According to Rotter (1966) and as emphasized by Mischel (1968) above, perhaps the most important kind of data for the assesment of the construct validity of the I-E control dimension is that derived from attempts of people to control their environment in important life situations. Joe (1971) offered the results of several studies as

support for the hypothesis that internals as compared with externals show more effort and initiative in controlling their environment, can control their own impulses better, show a greater tendency to seek relevant information, and adopt behaviour patterns which facilitate personal control over their environments.

There is some evidence that possession of an internal or external control orientation does affect causal attribution with respect to one's own behaviour although the effect of locus of control on the perception of the behaviour of others has not been systematically investigated. The basic hypothesis which has been investigated is that internals would attribute responsibility for either success or failure internally to personal sources such as ability or effort while externals would attribute responsibility for either success or failure externally to impersonal sources such as luck or task difficulty.

Dies (1968) investigated the effects of failure feedback on the extent to which subjects were willing to accept the responsibility for task outcome. Subjects, divided into teams each composed of a pair of female nursing students, worked toward the achievement of a mutually desirable goal. Each subject played a different role in the team effort but feedback on performance was delivered to the team as a whole. The hypothesis that external control subjects would attribute blame for failure to external factors (a partner, situational factors, etc.) and that internal subjects would more often attribute blame for failure to internal factors was not confirmed. Dies suggested that the highly structured nature of the experimental situation may have reduced the

effect of individual differences in any generalized tendency toward internal or external control. Indeed, Rotter (1966) stated that the more structured the experimental situation the less effect locus of control would be expected to have on performance.

In a similar fashion, Lackey (1968) investigated the relationship between locus of control and blame assignment. Subjects were classified in relation to an actor as either (1) similar to the actor or, (2) dissimilar to the actor. Actors described as similar to a subject were held less responsible than actors described as dissimilar to a subject. However, there was no significant difference in attribution of responsibility between subjects indicating an internal locus of control as compared to those indicating an external locus of control.

A third study by Fitch (1970) also failed to confirm the hypothesis that internals would attribute either success or failure to internal sources and that externals would attribute both success and failure to external sources. Subjects performed an ambiguous judgmental task and were given false success or failure feedback. However, Fitch indicated that his subjects may have disbelieved the false performance feedback.

Two more recent studies (Davis & Davis, 1972; Phares, Wilson, & Klyver, 1971) have shown greater success at confirming the hypothesis that internals would be more inclined to attribute performance to personal sources while externals would tend to attribute performance to impersonal sources regardless of whether success or failure was involved.

Phares, Wilson, and Klyver (1971) investigated the hypothesis that an internally oriented subject would show a greater proclivity for self-attribution of blame following failure than would an externally

oriented subject. From a population of male introductory psychology students, 32 were classified as internals and 32 as externals. Internality and externality were defined respectively as scores at least one standard deviation above or below a mean of 13.76 on the Internal-External (I-E) Scale (Rotter, 1966) scored in an internal direction. All subjects were required to take an anagrams test and a word location test, the latter involving the location of the name of a state in a block of letters (15 X 15). Subjects were told that both tests measured verbal IQ. Feedback for both tests was given on a 5-step scale ranging from excellent to poor and all subjects were told that their performance on both tasks was poor.

Phares et al. assumed that rating a subject's performance as poor would induce a strong failure experience. Following the receipt of feedback, all subjects were given an opportunity to express blame for their performance by completing a 26-item form involving the following three classes of assessment: (1) adequacy of the experiment and it's methods, (2) adequacy of the physical surroundings, and (3) the current situationally induced state of the subject. As each of these classes of assessment was associated with the tasks and conditions of the study, it seems reasonable to this writer to consider directing a high degree of blame at these classes as external attribution for blame for poor performance. Results indicated that internals tended to resort to externally directed blaming behaviour after poor performance to a lesser extent than did externals.

Davis and Davis (1972) investigated the hypothesis that the

magnitude of the difference between internals and externals in attributing responsibility to personal forces is greater after failure than after success. Subjects were 80 male introductory psychology students half of whom had scores above the 80th percentile (internals) and half below the 20th percentile (externals) on the I-E scale. A 15-item anagrams test was used to induce the success and failure conditions. Subjects were told that nine or more correct solutions represented above average ability, eight to six represented average ability, and five or less indicated poor ability. Thus, Davis and Davis did not explicitly describe a given performance as representing success or failure. Rather, it was apparently expected that a success or failure experience would be created by reference to the test norms.

The attribution measure used by Davis and Davis was similar to one used by Feather (1969). Subjects could locate the cause of their performance along a 10-point continuum where one pole referred to luck and the other pole referred to ability. Results indicated an overall trend for internals, as contrasted to externals, to attribute their performance to ability rather than luck. This trend was evident in significant differences in attribution between internals and externals under failure, but was not significant for differences under success. Further, externals placed greater emphasis on luck following failure than following success while internals did not differ across the two conditions. It is important to note that the mean attribution scores for both internals and externals across conditions of success and failure tended toward internality (ability). This may have been an artifact

of the success-failure manipulation since the test norms given subjects clearly stated a relationship between performance and ability.

Gilmor and Minton (1974) have also shown that it is possible to predict attribution on the basis of Rotter's I-E scale. The subjects were 40 internals and 40 externals selected from a group of male introductory psychology students. An internal was defined as one who achieved a score below the 33rd percentile and an external as one who achieved a score above the 67th percentile. Subjects were required to participate in an anagrams test identical to the one used by Feather (1969). Unlike the Phares et al. and Davis and Davis studies where subjects were expected to infer a failure experience on the basis of norms which described performance in such terms as above average, average, poor, etc., subjects in the Gilmor and Minton experiment were told explicitly that to pass the test five or more anagrams had to be solved and that less than five correct solutions represented failure. The post-performance attribution measure was also identical to one used by Feather (1969). Subjects who passed the test attributed responsibility for task outcome by marking a cross on a five inch linear scale the extremes of which were labelled either "mainly due to good luck" or "mainly due to ability" while the midpoint of the scale was labelled "50% luck, 50% ability". Similarly, subjects who failed the test recorded their attribution on a scale labelled "mainly due to lack of ability", "mainly due to bad luck", or 50% ability, 50% luck" at the appropriate points. Results indicated that, overall, subjects who succeeded at the anagrams test were inclined to attribute responsibility

for their success internally, to ability, while those who failed tended to attribute responsibility for the outcome externally, to bad luck. However, analysis also revealed a significant I-E by Success-Failure Outcome interaction--that is, after success, there was a significant tendency for internals to attribute responsibility for the outcome internally to ability, while externals tended to attribute responsibility externally to good luck. The results after failure will be discussed in the section on motivation included below.

Garrett and Minton (1975) replicated almost completely the results of Gilmor and Minton using a similar experimental procedure. However, in the Garrett and Minton study the dependent measure was a net attribution to personal sources score derived as follows: (attribution to ability + attribution to effort) - (attribution to luck + attribution to task difficulty) + 100. Subjects were able to make attributions to each of ability, effort, luck, and task difficulty separately on five inch linear scales labelled "Not a cause" or "Very much a cause" at the extremes and "Somewhat a cause" at the centre. Using a net score derived from the four scales it was demonstrated that internals attributed success to personal sources and externals attributed success to impersonal sources. None of the individual components of the net score showed this effect when analyzed separately. The Garrett and Minton study also offered some, albeit indirect, support for the suggestion that, as was the case for the Gilmor and Minton (1974) experiment, anagrams test norms should clearly specify "success" and "failure" rather than using more ambiguous terms such as "poor", "average", "above average", etc.

(Davis and Davis, 1972; Phares et al., 1971).

The several studies cited above in support of the notion that a generalized disposition for locus of control is related to attribution for performance all used an anagrams solving test as the achievement task. Two studies which used tasks other than the anagrams test in investigating the relationship between locus of control and attribution offered conflicting results. Krovetz (1974) employed a task which required subjects to indicate which of three African words had the same meaning as an English word. Subjects were tested in blocks of ten trials and all received 30% reinforcement on the first block. Over the course of the next six blocks of trials reinforcement schedules changed such that during the final two blocks subjects were reinforced at one of the following levels: 90%, 70%, 50%, 30%, or 10%. A subjects' locus of control was measured using Rotter's I-E Scale which was administered at least several days prior to the experiment. Results supported Rotter's theory of locus of control. In general, internally oriented subjects did perceive the task to be more skill-controlled than externals did while externals stressed the influence of chance more than internals did regardless of whether success or failure was being explained. However, results were somewhat different in the 90% condition. External subjects in this condition attributed their success to skill to a greater extent than did internals. According to Krovetz, this high level of reinforcement (90%) may have acted as a cue suggesting to externals that their success must have been due to something more than just chance and suggesting to internals that their success rate

was so high that something besides skill was responsible. Thus the internals' attributions to skill decreased while the externals increased.

Luginbuhl, Crowe, and Kahan (1975) required subjects to identify patterns which were flashed on a screen and blurred (not focussed) either 0%, 33%, 66%, or 100% of the time depending on the condition to which the subject was assigned. The task was defined as one requiring skill. In the success condition, subjects were told they were correct 23 out of 30 times and in the failure condition they were told they were incorrect 23 out of 30 times. However, Luginbuhl et al. do not report whether these scores were actually labelled success and failure or whether subjects were expected to infer that they had succeeded or failed. Rotter's I-E Scale had been administered to subjects at the beginning of the experimental session. Results did not show any relationship between attribution for performance and generalized expectancy for locus of control. The authors point out that a different type of performance task might have led to different patterns of attribution. Indeed, the task used by Luginbuhl et al. differed more from the anagrams test used by Davis and Davis (1972), Garrett and Minton (1975), Gilmor and Minton (1974) and Phares et al. than did the linguistics task employed by Krovetz (1974). The dependent measure used by Luginbuhl et al. involved percentage attribution to ability, effort, luck and task difficulty such that the total percentage attribution must equal 100%. Although not mentioned above, Garrett and Minton (1975) had also used this type of dependent measure and failed to find significant results.

Finally, it is interesting to note that Luginbuhl et al. reported that some subjects did not find the success-failure manipulation credible and this too could have affected subsequent attribution for performance.

Regarding the inconsistent relationship between attribution and locus of control, Gilmor and Reid (1975) have proposed that the reinforcement value of success or failure at a task can affect the resultant performance attribution. Consistent with prior research, they demonstrated that subjects attributed responsibility for positive and negative task outcomes in a manner consistent with their locus of control orientation. In particular, when the reinforcement value of performance was high, internals did attribute greater causality for success and failure internally, to ability, than when reinforcement value was low. Thus, it may have been that in studies which failed to find a relationship between generalized expectancy for locus of control and attribution for performance, the task was not of sufficient reinforcement value to be meaningful. The consideration of reinforcement value along with expectancy for locus of control is in accord with Rotter's (1966) social learning theory (see p.22).

Although the studies reported above are not totally consistent and several methodological problems have been noted, there is some evidence that the use of locus of control as a personality trait does improve prediction of attribution of causality for one's own actions.

The Role of Motivation in Attribution

Jones and Nisbett assert that much of man's motivation is

cognitively based, that is man wants to test and structure reality so that he can respond appropriately to it. However, they also suggest that other types of motivational factors may serve either to exaggerate or mute the actor-observer biases discussed earlier. Consider the motivation to maintain self-esteem. If an actor performs reprehensibly, his desire to maintain self-esteem will enhance his bias to make environmental attributions; that is, he will claim that others, if they found themselves in the same circumstances, would do exactly as he did. However, if the action is praiseworthy, the informational bias might be muted as the actor seeks to promote his self-esteem by attributing his behaviour to personal qualities.

The kind of relationship which Jones and Nisbett see existing between motivation and cognitive biases as these affect attribution is that motivational factors may or may not be present while cognitive biases are always present, although they may be muted.

Some evidence for the role of motivation in the attribution process waspresent in the work of Gilmor and Minton (1974) and replicated by Garrett and Minton (1975). As noted above, these authors found that, after success, internals made personal attribution for performance and externals made impersonal attributions for performance. These results were in accord with Rotter's (1958) social learning theory. However, what is interesting regarding the place of motivation in attribution research are the results after failure. There was a significant trend for internals to attribute failure to external impersonal factors, a trend which was the reverse of attribution after

success. Further, there was a nonsignificant tendency for externals to attribute failure to internal personal sources which was also a trend opposite the attributions they made after success. Gilmor and Reid (1975) noted similar trends where generalized expectancy for locus of control and specific situational expectancies were congruent-for example, in the case of an internal who showed high initial confidence regarding specific task performance. For internals the trend was apparent (but not significant) for attribution to ability, while the significant trend for externals was apparent for attribution to luck. The explanation suggested by the authors for this reversal of attribution was based on Heider's (1958) balance theory and naive analysis of action.

Heider (1958) discusses balanced states in terms of a perceiver (p), another person (o) who is the object of p's perception, and o's action or behaviour (x). There are two kinds of relations between the three entities p, o, and x: (1) a sentiment relation, and (2) a unit relation. Sentiment relations describe a person's evaluation of something as when p likes x or disapproves or o. A unit refers to things related in such a way that they form a meaningful whole because they logically go together as a consequence of similarilty, ownership, or some other unit forming characteristic. For example, if o owns a car, x, o and x can be said to form a unit.

A balanced state is defined as a situation in which the relations among entities fit harmoniously with no stress towards change. For example, if p likes o and approves of x, and o and x can be conceived of as a unit, there is harmony in the relations among the entities.

Heider states that balance or harmony exists among entities in a triad if all relations between the entities are positive or if one of the relations is positive and two are negative. A unit relation is considered to be positive and a non-unit relation negative.

In order to apply Heider's balance theory to the problem of attribution of task outcome it is necessary to outline Heider's (1958) naive analysis of action. Heider asserted that man is usually not content simply to take note of his actions. Rather, a man attempts to relate his actions to invariances in his environment. It is these invariances which give meaning to his experiences and form the reality of his life space.

In analyzing his own actions to determine the invariances responsible for them, an individual makes use of the concept of "can". "Can" refers to the relationship between the power or ability of the person and the strength of the environmental forces. This relationship may be stated as follows:

can = f (power, ability - difficulty of environment factors)

Attribution is defined as the linking of an event to it's underlying causes. In the process of linking, a unit relationship is formed. For example, where ability is prepotent over the countervailing forces of the environment and "can" is therefore positive, the actor and the outcome (success) form a unit. On the other hand, where the environmental forces are prepotent and "can" is therefore negative, the unit formed is not between the person and the outcome but, rather, it is between the environment and the outcome. Thus,

outcome (success and failure) may at one time be attributed more to personal sources and at other times more to impersonal sources. Finally, personal sources may be broken down into ability and effort, and impersonal sources to luck or fate and task difficulty.

Feather (1969) applied the concepts of balance theory to the problem of predicting attribution of task outcome when that outcome was either one of success or failure. Feather's predictions are illustrated in Figure 1 by means of linear digraphs where the entities are represented by points, attitudinal relationships by straight lines, and unit relationships by brackets. The arrows on the lines represent the directions of the attitudinal relations. Feather used a person's self-evaluation as Heider used o, and task outcome as Heider used x.

Feather expected that, if a person's self-evaluation was positive, success at a task would be attributed to the self, that is, to internal factors such as ability and that failures would be attributed to external factors such as bad luck. Therefore, in the case where a person's self-evaluation was positive, self and failure would not share a unit relationship. Figure 1, parts (a) and (b) represent these two outcomes in relation to a positive self-evaluation, and both of these situations meet Heider's criterion for balanced states.

In the case where a person's self-evaluation was negative, success would be attributed to external factors such as good luck and failure to internal factors such as lack of ability, that is to the self. Therefore, in the case where a person's self-evaluation was negative, self and success would not share a unit relationship.

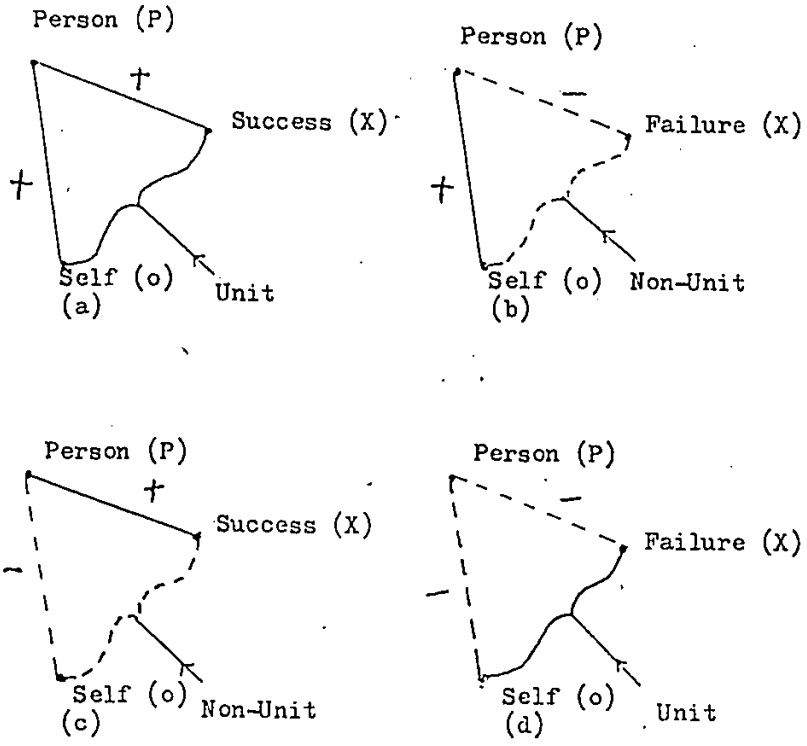

Figure 1: Signed-digraphs representing balanced structures involving three entities (person, self, outcome) and two relations (attitudinal, unit). After Feather (1969).

Figure 1, parts (c) and (d) represent these two outcomes in relation to negative self-evaluation and, again, the criteria for balance are met.

Gilmor and Minton (1974) suggested that I-E control would be a salient measure of self-evaluation in the sense that it offered a measure of perceived personal efficacy. Considering an internal orientation as representing a positive self-evaluation regarding efficacy and an external orientation as representing a negative self-evaluation regarding efficacy, the Gilmor and Minton results are explained by Feather's application of Heider's balance theory.

A recent study by Lefourt, Hogg, Struthers, and Holmes (1974) failed to replicate the results of Gilmor and Minton (1974) and Garrett and Minton (1975) but this failure to replicate may have been due to methodological differences particularily in the format of the anagrams test used. The subjects were 45 female and 24 male third year university students. Internals were designated as those who scored below a median of 11.5 on Rotter's (1966) I-E Scale and externals as those who scored above. Subjects completed nine sets of 10 anagrams each. The first three sets were rated as simple, the second three sets as intermediate in difficulty, and the final three sets as very difficult including some insoluble anagrams. Subjects completed all nine sets of anagrams sequentially from simple to very difficult. After each three sets of anagrams (simple, or intermediate difficulty, or very difficult) subjects were asked to make attributions for their own scores on those three sets on a scale ranging from 0 (mainly ability) to 10 (mainly luck)

with 5, the midpoint, indicating "50% luck and 50% ability". Thus, three attribution statements were obtained, one after each of the three types of anagram sets.

In order to parallel the analyses of Gilmor and Minton, Lefcourt et al. compared the attributions of subjects who succeeded with those who failed on the intermediate difficulty sets of anagrams. No differences were found in causal attributions as a function of outcome. The question of whether these results can be compared with those of Gilmor and Minton and Garrett and Minton arises directly out of the nature of the anagrams task. Subjects in the Lefcourt et al. experiment had experience with simple and then relatively more difficult sets of anagrams prior to making the attributions used in the analysis. But, on the basis of the Jones, Rock, Shaver, Goethals, and Ward (1968) study, reviewed previously (p. 6), subjects could be expected to note the increase in the difficulty of the anagrams and attribute their performance externally to this increase in difficulty. By contrast, the anagram test used by Gilmor and Minton and Garrett and Minton presented anagrams of varying difficulty randomly. Because of this randomness, subjects would not be biased toward making any particular causal attribution and, specifically, not towards an external task attribution. Lefcourt et al. allude to this difference. They suggest that, the balance model interpretations of the attribution process used by Gilmor and Minton is applicable when the informational cues suggesting specific attributions are few and that as the amount of task based attribution information increases there comes a point when one rejects accustomed ways of perceiving

himself. Consequently, as the Lefcourt et al. anagrams task offered considerably more attribution information than the task used by Gilmor and Minton and Garrett and Minton, the dissimilar results are not necessarily contradictory.

The line of theorizing and research described above has been applied to the problem of attribution of one's own behaviour. For example, it has been suggested that conception of failure as being due to one's own personal characteristics or effort is not consistent with the internal's belief in a high level of personal efficacy. In such a situation, the internal's impersonal causal attributions (eg. Gilmor and Minton, 1974) are taken to be one way of maintaining consistency between self-concept and performance. However, if that same internal is asked to explain the behaviour of some other actor, it is uncertain whether that other actor's failure will threaten the internal observer's own self-concept.

One factor which may determine the effect of motivation in such a situation is the amount of empathy which the observer feels for the actor's behaviour. If an observer 'puts himself in the other person's shoes' - that is, if the actor experiences a high degree of empathy for the observer's situation - he may make the same causal attribution as if he himself were performing the behaviour. Put another way, if an observer has performed or may expect to perform behaviour similar to the actor, the observer may explain the outcome of the actor's behaviour as though he (the observer) himself had performed in the actor's role. Jones and Nisbett (1971) have stated that "Presumably, the more the observer is set to empathize with the actor, the more similar their

attributional perspectives will be." (p. 9).

Jones and Nisbett point out that it is possible to affect the amount of empathy shown by the observer for the actor by simple variation in the observational instructions. In support of this statement, they cite the work of Lazarus (1966) and Alderman and Berkowitz (1970). Varying empathy by varying instructions to the subject results in changing the subject's appraisal of the situation and this was the approach described by Lazarus (1966) as used in a study by Speisman, Lazarus, Mordkoff, and Davison (1964). Speisman et al. used a threat film depicting a series of crude surgical operations on male genitals (subincision) of adolescents as performed by the people of a primitive native culture in Australia. Several sound tracks were constructed for the film reflecting different ways of interpreting or thinking about the events portrayed in the film. Results showed that sound tracks which intellectualized or denied the pain and danger in the film significantly reduced the subject's disturbance reaction (inferred from measurements of skin conductance) as compared with a sound track emphasizing the harmful features or no sound track at all.

Alderman and Berkowitz (1970) explored the possibility that different kinds of observational sets may elicit different empathic responses from the observers and that these different responses can, in turn, influence an observer's subsequent willingness to be helpful. Empathy was defined as an emotional response to an observation or an anticipation of an emotional display by another. An empathic response

was assumed to depend on the observer's imagining how he would feel if he were in the other person's shoes (imagine self) or imagining the feelings of the person he was observing (imagine him). Results showed some support for the thesis that different empathic reactions can mediate help giving. Subjects who attended to a fictitious person in need who was not helped appartently took the role of this person and felt relatively unhappy and resentful because of his frustration. This anger and unhappiness presumably motivated the subjects to be helpful. The authors note, however, that the study is weakened by the failure to include a nonempathizing control group.

One additional experiment suggestive of the role of empathy on attribution was performed by Jones and DeCharms (1957). They found that the perception of another's characteristics will vary greatly as a function of whether the other's behaviour promotes or interferes with goal attainment. Specifically, when attainment of monetary reward was dependent on group achievement and one member of the group failed, that group member was evaluated more negatively than when his performance was not related to attainment of monetary reward. Using the concept of empathy, it might be presumed that the group members had a greater emotional reaction to failure by one of their members when the failure was relevant for them.

None of these studies has a direct bearing on the methodology of Gilmor and Minton (1974) and Garrett and Minton (1975) as described in the discussion of the role of motivation on causal attribution. But, taken together, they at least suggest that the behaviour of one

individual may be affected if he can be made to feel that the behaviour and feelings of another individual are relevant for him. The results of Miller and Norman (1975), Wolfson and Salancik (1975) and Medway, Lowe, and Baron (1975) (see p. 15) showing the importance of both the involvment of the observer in the situation and his relationship to the actor are also suggestive of such an approach.

Overview

The roles of cognitive processes, locus of control as a personality trait, and motivation have been reviewed in relation to the attribution process. Theoretical rationale and empirical evidence suggest that cognitive processing of available information results in the attribution of another's behaviour in terms of the personal dispositions of that person while the cause of one's own behaviour is attributed to environmental circumstances. However, it has also been suggested that if an observer with a given locus of control can be made to empathize with an actor concerning the outcome of the actor's behaviour, the observer will explain the cause of the actor's behaviour as though it were his (the observer's) own. If there is no empathic relationship between actor and observer, it has been suggested that the actor's attributions will follow the predictions of cognitive processing described by Jones and Nisbett (1971). By combining these propositions it can be hypothesized that self-performance or the performance of another person toward whom one feels empathy will be attributed to external (impersonal or environmental) factors while the performance of another person with whom one does not feel empathy will be attributed to internal (personal) factors, (Hypothesis I).

Predictions of social learning theory and research suggest that the learned personality trait locus of control will also affect attribution of behaviour. Specifically, internals will tend to attribute the outcome of their behaviour internally to personal sources (ability, effort) while externals will tend to attribute the outcome of their behaviour externally to impersonal sources (luck, task difficulty).

Finally, it has been suggested that motivation to maintain consistency in one's self-concept with regard to personal efficacy plays an important part in the attribution process. In particular, motivation and locus of control have been shown to interact such that, after success, behaviour is explained in accord with the predictions of social learning theory; but, in contrast, after failure causal attribution tends to be reversed so that, internals tend to attribute failure to external, impersonal sources while externals tend to attribute failure to internal personal characteristics. If the expectations of the social learning theory and motivational approaches are added to Hypothesis I above, a second prediction is possible. It can be hypothesized that: (1) internals explaining their own behaviour or the behaviour of another person with whom they are empathic will make internal attributions for success and external attributions for failure, while externals explaining their own behaviour or the behaviour of another person with whom they are empathic will make external attributions for success and internal attributions for failure; and (2) internals and externals explaining the behaviour of another person with whom they do not empathize will make external attributions for success and failure. (Hypothesis II).

Jones and Nisbett have tended to emphasize the value of cognitive processing of situational information in attribution while minimizing the value of personality trait theory and motivation. To the contrary, the research reviewed suggests an intergration of the three approaches is required. Indeed, several theorists, some of whom have been mentioned above, suggest, at least implicitly, the value of such an integration. Mischel, one of the strongest critics of trait theory, has stated that:

> "While abstractly acknowledging the 'interaction of person and situation', most trait and state theories assume internalized behaviour dispositions relatively independent of stimulus conditions. It is the existence of such stimulus free, highly generalized behavioural sets - not the occurrence of long term individual differences in response to stimuli - that is unsupported.. ...(1968, p. 282)

Rotter's social learning theory which was reviewed earlier sees behaviour potential to be a function of the situation, expectancy (the trait 'locus of control') and the value of reinforcement to the actor (an affect related to motivation).

Finally, Weiner (1972) has sought to develop an attributional model of achievement behaviour which includes individual traits (expectancy), cognitive processes, and affect (pride, shame). This model is illustrated in Figure 2.

For present purposes it will suffice to note that in Stage 3 "Task and Causal Ascription Reevaluation" (see Fig. 2) of Weiner's model, there is an affective response. The contention of the above discussion is that this affective response will influence the processes of balance theory if the behaviour for which ascriptions are being made

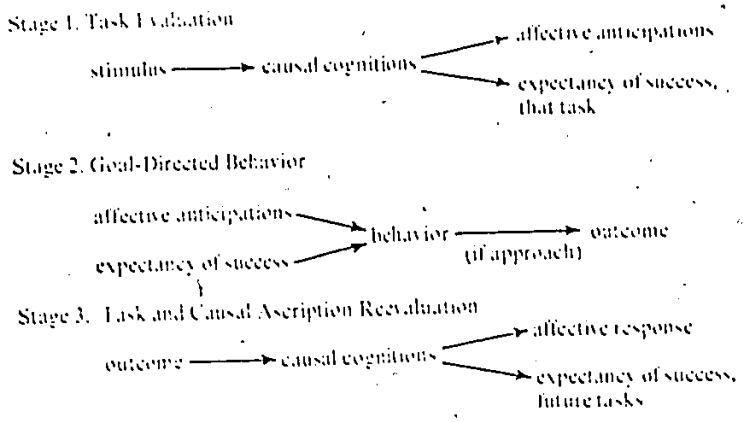

Figure 2: Cognitive and Behavioural Sequence Depicted in an Attributional Model of Motivation.

(After Weiner, 1972)

is one's own or another person's toward whom one feels empathic.

The present study attempted to integrate the concepts of locus of control as a personality trait, cognitive processing, and motivation by investigating the hypotheses described above in an experimental design involving the following three factors: (1) internal versus external locus of control; (2) success versus failure outcome of a performance task; and, (3) attribution of own behaviour (self) as compared to attribution for the behaviour of another person with whom one is empathic (other-empathy) and to attribution for the behaviour of another person with whom one feels no empathy (other-no empathy).

Chapter II

METHOD

Subjects

Subjects were 182 male grade 11 and 12 students drawn from three Windsor High Schools. The percentage of subjects from each high school in each of the experimental conditions was approximately the same as the percentage of subjects from each high school in the total sample. By balancing the design in this way potentially relevant interschool differences such as socioeconomic status were to some extent controlled. In addition, there was an attempt to select high schools with similar student population based on the knowledge of school officials. Females were not used for two reasons: (1) previous research from which the hypotheses of the present study were derived (Davis & Davis, 1972; Garrett & Minton, 1975; Gilmor & Minton, 1974) used only male subjects; and, (2) Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum (1971) have noted that, for females, the relationship between achievement behaviour and locus of control is undetermined as studies have yielded inconsistent results.

Materials

The I-E Scale. The Internal-External Control (I-E) Scale (Rotter, 1966) is a 29-item forced choice questionnaire which includes six filler items (see Appendix A). The total scale is considered to be a measure of generalized expectancy for locus of control. Each item is composed of alternate expectancy statements. One such statement is characteristic of a belief in an internal locus of control while the other statement is characteristic of a belief in an external locus of

control. The scale is scored in the direction of external control.

Rotter (1966) reported results of factor and item analyses which yielded internal consistency estimates ranging from .65 to .75 with sample sizes varying from 50 to 1000, and estimates of test-retest reliability ranging from .49 to .83 for intervening time periods of one or two months with sample sizes varying from 28 to 117. Hersch and Scheibe (1967) found test-retest reliability coefficients ranging from .43 to .84 for a two month period with sample sizes varying from 20 to 76. Rotter also concluded that the I-E Scale displays good discriminant validity based on low correlations with two measures of intelligence (sample sizes from 72 to 107) and the Marlowe Crowne Social Desirability Scale (sample sizes from 77 to 306). Hersch and Schiebe also found nonsignificant correlations between I-E Scale scores and three different measures of intelligence (sample sizes from 20 to 76). The behaviour indices of locus of control cited previously (see p.23) offer evidence of the construct validity of the I-E Scale.

Although Rotter reported homogeneity, studies by Gurin, Gurin, Lao, and Beattie (1969), Mirels (1970), Minton (1972) suggest that the I-E Scale may not be undimensional. Distinctions have been made between beliefs one has about being master of his own destiny (General Personal Control Factor) and the beliefs one has about the general efficacy of getting involved in social and political affairs (System Modifiability Factor). However, for purposes of the present study, the total I-E Scale score was used as a measure of locus of control. Several reasons underlie this decision. First, Minton (1972) reported inconsistencies in factor analytic analyses of the I-E Scale scores obtained from

University of Windsor students. Second, Minton reported that the General Personal Control Factor, which is the emergent factor most closely related to the idea of internal-external control as originally conceived by Rotter, accounts for approximately twice as much variance as any other emergent factor. Finally, the I-E Scale total score was used as an index of locus of control in the studies cited above which underlie the present hypotheses.

The Nowicki-Strickland Locus of Control Scale. For adults and university students, the most commonly used measure of locus of control is the Rotter (1966) I-E Scale. Nowicki and Strickland (1973) reviewed the psychometric evidence for tests designed to measure locus of control in children (Battle & Rotter, 1963; Bialer, 1961; Crandall, Katkovsky, & Crandall, 1965) and concluded that none of the measures was adequate.

Nowicki and Strickland therefore undertook a programme of research resulting in the development of the Nowicki-Strickland Locus of Control Scale, a 40-item questionnaire requiring yes-no answers (see Appendix B). Research has indicated satisfactory reliability and validity for children in grades 3-12. For grade 11 subjects, a test-retest reliability coefficient of .75 has been reported for a six week period as well as a split half reliability coefficient of .74. Nonsignificant correlations between the scale and measures of intelligence and social desirability have been offered as evidence of discriminant validity. A significant, though not high correlation has been reported between the Nowicki-Strickland Scale and the Rotter (1966) I-E Scale. Internality on the Nowicki-Strickland Scale has been associated with academic competence, social maturity, and independent, striving, self-motivated behaviour.

The grade 11 and 12 subjects used in the present study were not easily classified as either adults or children. Because of the central place played by the Rotter (1966) scale in the previous research it was deemed necessary to include it as the principle measure of locus of control in the present study. However, as the Nowicki-Strickland Scale was specifically developed for a younger population it was considered valuable to assess locus of control using this additional measure.

The Rotter Interpersonal Trust Scale. Results from a number of studies have suggested that compared to internals, externals are a more heterogeneous group. In particular, Rotter (1966) suggested two sub-groups of externals; (1) congruent or true externals, and (2) defensive externals. Defensive externals were thought to be those who made external attributions for behaviour not because of their past reinforcement histpry, but as a defense against failure. Hochreich (1968, 1974) has suggested that defensive externals are not only high in externality but are low in interpersonal trust. The common variance on both these factors was assumed to represent the defensive external's characteristic verbal technique of defense against failure through external attributions. It was considered potentially useful as an exploratory function in the present study to attempt to identify defensive externals. Following Hochreich, Rotter's (1971) Interpersonal Trust Scale was used as the trust measure.

The Interpersonal Trust Scale contains 25 trust items and 15 filler items (see Appendix C). Subjects respond by rating each item on a 5-point scale ranging from "strongly agree" to "strongly disagree." Rotter (1971) reports an internal consistency coefficient of .76 and

test-retest reliabilities of .69, .68, and .56 for periods of five weeks, three months, and seven months respectively. He found a correlation of .29 between the Interpersonal Trust Scale and the Marlowe-Crowne Social Desirability Scale indicating some relatively small shared variance. The trust scale also appears to have discriminant validlity with respect to intelligence as Rotter reports no significant correlation with college entrance scores. Rotter (1971) reviews several studies coming to the conclusion the scale is able to predict sociometric and behavioural indices of trust and therefore manifests construct validity.

The Anagrams Test Booklet. The performance test booklet used in the present study was similar in design to one used by Feather (1969), Gilmor and Minton (1974), and Garrett and Minton (1975). The major differences were that (1) all subjects were not given the same anagrams to solve, and (2) there was no measure of initial confidence included in the booklet. The first change was necessitated by the fact that it was not possible to obtain prior normative data on the anagrams to be used. Therefore, in order to manipulate success and failure, some booklets contained anagrams which were easier than those in other booklets. However, this was not obvious to the subjects as the anagrams appeared in random order in all booklets and all booklets contained some difficult and some easy items. The second change was necessary because both the behaviour of self and others was being investigated, and where the behaviour of others was the focus of interest it was unreasonable to ask subjects to estimate the initial confidence of the other person.

The performance test booklet (see Appendix D) contained a set

of ten 6-letter anagrams, with each anagram printed on a separate page. As already stated, there were two forms of the booklet, one to induce success and one to induce failure and the order in which the anagrams appeared in each booklet was randomized across subjects. The last page of the booklet contained a space in which the subject recorded his own score on the test.

The Post-Performance Questionnaire. The Post-Performance Questionnaire contained the measure of causal attribution. In accord with Heider's (1958) naive analysis of action, the questionnaire allowed a subject the opportunity of expressing attributions to ability, effort, luck, and task difficulty as in the Garrett and Minton (1975) study.

The Post-Performance Questionnaire (see Appendix E) was composed of two parts analogous but different in structure (after Feather & Simon, 1971). Differences between the two parts related solely to whether or not the subject passed or failed. In Part I, subjects who solved five or more anagrams, that is those who passed the test, were instructed to indicate attributions for their performance or the performance of another person to "Easy task", "Tried hard", "Good luck", and "Skill and ability". Analogously, in Part 2, subjects who solved fewer than five anagrams, that is those who failed the test, were instructed to indicate attributions for their performance or the performance of another person to "Difficult task", "Did not try hard", "Bad luck", and "Lack of Skill and Ability". Subjects recorded their attributions by placing a cross on a separate 5-inch linear scale for each attribution component. Each scale had the statement "Not a cause" at one extreme, "Very much a

cause" at the other extreme, and "Somewhat a cause" in the middle. Scales were scored 0-10 in the direction of increasing causality, each half inch measure equivalent to one unit.

The General Performance Questionnaire. Frieze (1974) has validated the types of causal attribution allowed in the Post-Performance Questionnaire described above. She found that attributions attributed to ability, effort, luck, and task difficulty accounted for most of the causal attributions appearing in her study with effort and then ability the most common attributions. However, Frieze has also suggested that an open-ended attribution format might allow the investigator to detect additional cues influencing the subject's behaviour. To accomplish this the General Performance Questionnaire was included as an exploratory measure (see Appendix F). Each subject was asked to respond to two stimuli stating why he thought the event described in the stimuli occurred. Depending on whether a subject had passed or failed or was explaining his own behaviour or the behaviour of another person, he received the following stimuli (After Frieze, 1974):

Pass, self-attribution: You received a very high score on an exam.

You won a game.

Fail, self-attribution: You have just failed an exam.

You lost a game.

Pass, other attribution: A classmate of yours received a very high score on an exam.

A friend of yours won a game.

Fail, other attribution: A classmate of yours just failed an exam.

A friend of yours just lost a game.

Only the first causal attribution listed by the subject in response to each stimuli was used in the analysis. These attributions were categorized as reflecting internal (scored as 1) or external (scored as 2) attributions for performance. As in the case of the Post-Performance Questionnaire, The General Performance Questionnaire booklet contained two analogous parts, one for subjects who passed and one for subjects who failed.

Procedure

The experiment was conducted in specially set aside classrooms during regular class periods in the three Windsor High Schools from which subjects were drawn. Two 50 minute sessions, approximately one week apart were required. Both sessions of the study were completed in any one school before moving to the next.

Session One. During this session, each subject was asked to complete the Rotter I-E Scale, the Nowicki-Strickland Locus of Control Scale and the Rotter Interpersonal Trust Scale in that order. Of the three schools, 121 subjects came from the first, 18 from the second, and 43 from the third. Using a median split based on the distribution of I-E Scale scores obtained from the first school, internals were defined as those students having scores of 11 or below and externals as those having scores of 12 or above.

Session Two. For this session, an approximately equal number of internal and external subjects was randomly assigned to the success or failure condition in each one of three groups. The experimental procedure was administered to each of the three groups separately but

in immediately consecutive class periods so that subjects in one group had no opportunity to discuss the procedure with those in any other group. The three groups were (1) those asked to make attributions for their own performance on the Anagram Test, (2) those asked to make attributions for the performance of others toward whom they were empathic and (3) those asked to make attribution for the performance of ~~others~~ toward whom they were not empathic.

The presence or absence of empathy was assumed to depend on whether or not subjects completed the Anagram Test. Thus, subjects in group two (other-empathy) completed the Anagram Test and then were asked to explain why others like themselves passed or failed the same Anagram Test. Subjects in group three (other-no empathy) were asked to make the same attributions but rather than completing the Anagram Test, they were only given an oral description of it. Thus, compared to group two, group three subjects were expected to feel less empathy for the others whose performance they were asked to explain.

The following instructions which will clarify the procedure were given by the experimenter to the various groups in session two:

> (To group 1, 2, and 3) This study is concerned with establishing norms for high school students on a particular type of test. By that I mean simply that we want to find out how high school students normally do on the test.
>
> (To groups 1 and 2) After you have done the test, you will be asked to complete several questions which will be useful in interpreting the results. (To group 3) You will not actually do the test. But, after I describe the test you will be asked to complete several questions which will be useful in interpreting the results I have.
>
> (To groups 1, 2, and 3) Each person will receive an envelope

with his name on it containing all the materials you will need. Do not open the envelope until I tell you to do so. Also, in order that everyone will have a good opportunity to complete the material without interuption it is very important that you do not discuss the contents of your envelope with any other student. (The envelopes were passed out. By using this method of distributing the material it was possible to preselect those subjects who would be in the pass or fail condition in each session thereby ensuring that each success or failure condition had subjects from throughout the I-E Scale distribution.)

Let me describe the Anagram Test to you. On each page of the test booklet there is a scrambled group of six letters. The task is to rearrange the group of letters so that they make a meaningful word. There are ten anagrams altogether and all of them are in fact soluble. Thirty seconds are allowed for work on each anagram. If an anagram is solved before 30 seconds are up you must not go on to the next anagram. Also, you must not return to any of the pages whose anagrams you did not solve in the time allowed. Passing the test is obtaining a score of five or more correct. Failing the test is getting a score of less than five. Are there any questions?

(To groups 1 and 2) Remove the Anagram Test, only, from the envelope and put your name and the date on the front. (time allowed to do this).

Now turn to the first page and begin the test. (After each thirty-second interval) Go on to the next page. (After the last anagram) Stop work!

Now without changing or altering any of your answers, add up the number of anagrams you have solved. Record the number of correct anagrams in the appropriate space on the last page of the booklet. Your score, of course, will be kept confidential. If you have any doubt as to whether you have a correct solution, please raise your hand. (Ensured that all test scoring was completed.)

(To group 3) I will write a sample of the anagrams found in the test on the board. Here is the answer to an anagram (wrote WANTED on the board) Now here is the way this word appears in the test booklet (wrote WADNET on the board) Are there any questions? (answered any questions).

(To group 3) Now remove the Post-Performance Questionnaire from the envelope and do what it asks. If there is any question raise your hand. (subjects in group 3 received either the

pass (Part I) or fail (Part II) portions of the Post-Performance Questionnaire.

(To groups 1 and 2) Please remove the Post-Performance Questionnaire from the envelope. In the Post-Performance Questionnaire you will find two sets of instructions. If you passed the test, that is if you had a score of five or more correct, turn to page 1 and follow the instructions under Part I. If you failed the test, that is if you got less than five correct, turn to page 3 and follow the instructions under Part II. If there are any questions please raise your hand.

(To group 3 after everyone had finished the Post-Performance Questionnaire) Please replace the Post-Performance Questionnaire in the envelope, take out the General Performance Questionnaire and complete it. (Subjects in group 3 received either the pass (Part I) or the fail (Part II) portion of the General Performance Questionnaire). Again, if you have any questions, please raise your hand. (time was given to complete the questionnaire)

(To groups 1 and 2) Please put the Anagrams Test and the Post-Performance Questionnaire back into the envelope and remove the General Performance Questionnaire. The General Performance Questionnaire also contains two sets of instructions. If you passed the test, that is if you got a score of five or more correct, turn to page 1 and follow the instructions under Part I. If you failed the test, that is if you got a score less than five correct, turn to page 2 and follow the instructions under Part II. If there are any questions, please raise your hand.

(To all groups) If you have any additional comments about your participation in the study you may write them on the back of the General Performance Questionnaire. (time given for additional comments to be written and all materials were collected)

Subjects were debriefed in a manner designed to achieve three goals: (1) to mitigate any concern which might have arisen as a consequence of the subjects' performance on the Anagrams Test; (2) to help subjects appreciate the context and the value of their participation in psychological research; and, (3) to enlist subject co-operation in not discussing the research with their peers for at least one month in case they had friends among subjects in other schools.

Chapter III

RESULTS

Theoretical expectations derived from the review of the literature led to the following two specific hypotheses:

I. There would be a significant main effect for self-other attribution such that the performance of one's self or of another toward whom one felt empathy would be attributed to external, impersonal factors while the performance of another person toward whom one did not feel empathy would be attributed to internal, personal factors.

II. There would be a significant interaction between locus of control, success-failure outcome, and self-other attribution such that: (1) internals explaining their own performance or the performance of another person with whom they were empathic would make internal personal attributions for success and external impersonal attributions for failure, while externals explaining their own performance or the performance of another with whom they were empathic would make external, impersonal attributions for success and internal personal attributions for failure; and (2) both internals and externals explaining the performance of another toward whom they were not empathic would make internal, personal attributions for both success and failure.

Hypotheses I and II were tested using several 2 X 3 X 2 unweighted means analyses of variance (Winer, 1971) with Locus of Control (internal versus external), Self-Other Attributions, and Performance (pass versus fail) as factors. The Self-Other Attributions factor had three levels: (1) attributions about one's own performance; (2) attributions about the performance of another person with whom the subject was empathic; and (3) attributions about the performance of another person with whom the subject felt no empathy. The dependent measures used in these

analyses were: net attribution to personal sources, total attribution to personal and to impersonal sources, and attribution to ability, effort, task difficulty, and luck. The derivation and analysis of each of these dependent measures is described below.

Net Attribution to Personal Sources

Net causal attribution to personal sources was calculated as follows: (attribution to ability plus attribution to effort) minus (attribution to task difficulty plus attribution to luck). The higher the net score, the greater was the extent to which performance was seen by a subject to derive from internal or personal factors. One hundred was added to this net score to eliminate negative numbers and the resultant score for each subject was examined in a 2 X 3 X 2 unweighted means analysis of variance[1] as described above. Cell means and a summary of the analysis of variance appear in Table 1.

The significant Self-Other main effect expected from Hypothesis I[2] is apparent. Closer inspection using the Scheffe method revealed that individual means were in accord with Hypothesis I. Specifically, the

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1. Analyses of variance were computed using the University of Windsor version of the University of Illinois analysis of variance computer programme Balanova.

2. Since, because of it's rigor with respect to Type I error the Scheffe method is relatively more conservative than other multiple comparison methods, differences between specific pairs of means were reported as significant if $p. < .10$. This is in accord with the recommedations of Scheffe (1959).

Table 1

Cell Means and Summary of Analysis of Variance for

Net Attribution to Personal Sources

Cell Means for Net Attribution to Personal Sources

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	103.83 (18)[a]	100.44 (18)	102.42 (12)	101.08 (13)
Other-Empathy	105.25 (16)	100.33 (18)	100.62 (13)	99.21 (14)
Other-No Empathy	106.54 (13)	103.94 (18)	104.94 (16)	104.62 (13)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)	68.878	1	68.878	2.289
Self-Other Attribution (B)	456.729	2	228.365	7.589*
Performance (C)	240.778	1	240.778	8.001*
A X B	59.264	2	29.632	0.985
A X C	75.848	1	75.848	2.521
B X C	21.468	2	10.734	0.357
A X B X C	4.627	2	2.313	0.077
Experimental Error	5115.598	170	30.092	

[a]Ns for each cell are shown in parentheses.

*P<.01

performance of others for whom subjects had no empathy was attributed to significantly more personal sources ($\bar{X}$=105.01) than either the performance of others with whom subjects were empathic, ($\bar{X}$=101.35), $F(2, 170) = 13.39$, $p < .01$, or the performance of the subjects themselves $\bar{X}$=101.94 $F(2, 170) = 9.41$, $p < .05$. The latter two means (101.35, 101.94) were not significantly different from each other.

A significant main effect for performance was, also evident, $F(1, 170) = 8.00$, $p < .01$, such that attributions for pass performance ($\bar{X}$= 103.93) were significantly more personal than attributions for failure ($\bar{X}$=101.60). The A X B X C interaction necessary for confirmation of Hypothesis II was not significant ($p > .05$). Nor was there a trend in the expected direction.

Total Attribution to Personal Sources

Net attribution to personal sources analyzed above was derived by subtracting total attribution to impersonal sources (attributions to task difficulty plus attribution to luck) from total attribution to personal sources (attribution to ability plus attribution to effort). However, variation in either, not necessarily both, of the total scores could have produced the results described above. That is, if, for example, total attribution to personal sources varied across conditions while total attribution to impersonal sources was relatively invariant, the latter would have the effect of subtracting a constant in calculating the net attribution score. The same would be true if total attribution to personal sources remained stable while total attribution to impersonal sources varied across conditions. Only by analyzing the two total scores

as separate dependent measures could it be determined if only one or both showed significant variation.

As noted above, total attribution to personal sources was calculated by adding together attribution to ability and attribution to effort for each subject. The resultant dependent measure was analyzed in a 2 X 3 X 2 unweighted means analysis of variance. Cell means and a summary of the analysis of variance are presented in Table 2.

It is apparent that these results were almost identical to those reported for the net attribution to personal sources score. There was a significant Self-Other main effect, $F(2, 170) = 12.16$, $p < .01$, as expected from Hypothesis I. Again, application of the Scheffe test revealed that individual mean were in accord with Hypothesis I. That is, the performance of others for whom subjects had no empathy was attributed significantly more to personal sources ($\bar{X}=13.84$) than either the performance of others with whom subjects were empathic ($\bar{X}=10.52$), $F(2, 170) = 18.77$, $p < .01$, or the performance of subjects themselves ($\bar{X}=10.55$), $F(2, 170) = 18.43$, $p < .01$. The latter two means (10.52, 10.55) were not significantly different.

There was a significant main effect for performance $F(1, 170) = 16.59$, $p < .01$, such that there was greater personal attribution for success ($\bar{X}=12.93$) than for failure ($\bar{X}=10.35$). The A X B X C interaction necessary for confirmation of Hypothesis II was again nonsignificant ($p > .05$) and not even a trend in the expected direction was apparent.

Total Attribution to Impersonal Sources

As described previously, total attribution to impersonal sources

Table 2

Cell Means and Summary of Analysis of Variance for Total Attribution to Personal Sources

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	12.06 (18)[a]	9.61 (18)	11.17 (12)	9.38 (13)
Other-Empathy	13.81 (16)	9.05 (18)	11.07 (13)	8.14 (14)
Other-No Empathy	14.08 (13)	12.99 (18)	15.37 (16)	12.92 (13)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)	15.499	1	15.499	0.872
Self-Other Attribution (B)	431.866	2	215.933	12.155*
Performance (C)	294.671	1	294.671	16.587*
A X B	43.951	2	21.976	1.237
A X C	1.523	1	1.523	0.086
B X C	36.822	2	18.411	1.036
A X B X C	19.420	2	9.710	0.547
Experimental Error	3020.014	170	17.765	

[a] Ns for each cell are shown in parentheses.

*$p < .01$

was used in the derivation of the net attribution to personal sources score. Total attribution to impersonal sources was calculated by adding together attribution to task difficulty and attribution to luck for each subject. For reasons explained above, it was of interest to determine if this score varied in the same way as had the net attribution score. Therefore, total attribution to impersonal sources was examined in a 2 X 3 X 2 unweighted means analysis of variance. Cell means and a summary of the analysis of variance are presented in Table 3.

None of the main effects observed with the net score were apparent. Total attribution of one's own performance to impersonal sources ($\bar{X}$=8.61) was not significantly different from attribution of another's performance regardless of whether empathy was present ($\bar{X}$=9.17) or absent ($\bar{X}$=8.83), $F(2, 170) = 0.30$, $p < .05$. Thus, this dependent measure offered no support for Hypothesis I. Nor was there any significant difference in attribution for successful performance ($\bar{X}$=9.00) as compared to unsuccessful performance ($\bar{X}$=8.75), $F(1, 170) = 0.17$, $p < .05$). Lack of a three factor interaction again left Hypothesis II unsupported with not even the expected trend present.

It should be noted, however, that the Locus of Control (A) by Performance (C) interaction approached significance $F(1, 170) = 3.57$, $p < .10$. The nonsignificant trend was for internals to attribute pass performance to impersonal sources ($\bar{X}$=8.11) to a lesser extent than internals who failed ($\bar{X}$=8.98), and for externals to attribute pass performance to impersonal sources ($\bar{X}$=9.88) to a greater extent than failure ($\bar{X}$=8.51).

Thus, when either the net attribution to personal sources score

Table 3

Cell Means and Summary of Analysis of Variance for Total Attribution to Impersonal Sources

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	8.22 (18)[a]	9.17 (18)	8.75 (12)	8.31 (13)
Other-Empathy	8.56 (16)	8.72 (18)	10.46 (13)	8.93 (14)
Other-No Empathy	7.54 (13)	9.06 (18)	10.44 (16)	8.31 (13)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)	19.030	1	19.030	1.216
Self-Other Attribution (B)	9.319	2	4.660	0.298
Performance (C)	2.719	1	2.719	0.174
A X B	14.946	2	7.473	0.477
A X C	55.879	1	55.879	3.570
B X C	6.593	2	3.297	0.211
A X B X C	11.141	2	5.571	0.356
Experimental Error	2660.898	170	15.652	

[a]Ns for each cell are shown in parentheses.

or one of it's component parts, total attribution to personal sources, served as the dependent measure Hypothesis I was supported. When total attribution to impersonal sources, the second major component of the net score, served as a dependent measure of attribution, Hypothesis I was not supported and no significant differences were observed. Thus, total attribution to personal sources contributed to variation in the net attribution score while total attribution in impersonal sources did not. In no instance was Hypothesis II supported.

The Individual Attribution Components as Dependent Measures.

Each of the attribution scores analyzed thus far was composed of scores derived from some or all of the following individual components: ability, effort, task difficulty, or luck. Since any of these individual components of the total and net attribution scores might show greater variability than the others across conditions, attribution to each was analyzed separately in a 2 X 3 X 2 unweighted means analysis of variance and these results are presented in this section.

Attribution of ability. Cell means and a summary of the analysis of variance for attribution to ability are presented in Table 4. There was a significant main effect for Self-Other Attribution $F(2, 170) = 4.67$, $p < .05$. Consistent with the previous results, there was greater attribution to ability, an internal attribution component, for the performance of others with whom subjects had no empathy ($\bar{X}=7.26$) than for either the performance of others with whom subjects were empathic ($\bar{X}=5.86$) $F(2, 170) = 7.86$, $p < .05$, or the performance of subjects themselves ($\bar{X}=6.00$) $F(2, 170) = 6.37$, $p < .05$. The latter two means

Table 4

Cell Means and Summary of Analysis of Variance for Attribution to Ability

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	6.61 (18)[a]	5.22 (18)	7.25 (12)	4.92 (13)
Other-Empathy	7.31 (16)	5.78 (18)	5.08 (13)	5.29 (14)
Other-No Empathy	7.23 (13)	6.50 (18)	7.94 (16)	7.38 (13)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)	0.784	1	0.784	0.104
Self-Other Attribution (B)	70.562	2	35.281	4.679*
Performance (C)	49.415	1	49.415	6.553*
A X B	36.594	2	18.297	2.426
A X C	1.194	1	1.194	0.158
B X C	14.362	2	7.181	0.952
A X B X C	13.446	2	6.723	0.892
Experimental Error	1281.947	170	7.541	

[a]Ns for each cell are shown in parentheses.
* $p < .05$

(5.86, 6.00) did not differ from one another. With respect to explaining performance by attribution to ability, Hypothesis I was therefore supported.

The significant main effect for performance, $F(1,170) = 6.55$, $p < .05$, demonstrated that there was greater attribution to ability for successful ($\bar{X}=6.90$) than for unsuccessful performance ($\bar{X}=5.85$).

Attribution to effort. Cell means and a summary of the analysis of variance for attribution to effort, the second internal attribution component, are presented in Table 5. The significant main effect of Self-Other Attribution $F(2,170) = 8.94$, $p < .01$, df=2/170, $p < .01$) paralleled those already reported. When subjects were asked to explain the performance of another person with whom they were not empathic there was significantly greater attribution to effort ($\bar{X}=6.58$) than when the performance being explained was that of another person for whom there was empathy ($\bar{X}=4.66$), $F(2, 170) = 12.91$, $p < .01$) or of one's self ($\bar{X}=4.55$), $F(2, 170) = 15.15$, $p < .01$. The latter two means (4.66, 4.55) were not significantly different.

The significant main effect for performance, $F(1, 170) = 11.90$, $p < .01$, also paralleled the results already reported. Effort was seen to be involved more in successful performance ($\bar{X}=6.02$) than in unsuccessful performance ($\bar{X}=4.50$).

The Self-Other (B) by Performance (Q) interaction for attribution to effort was also significant, $F(2, 170) = 3.88$. $p < .05$. The cell means for this interaction appear in Table 5. Application of the Scheffe test revealed that where attributions were made concerning the performance

Table 5

Cell Means and Summary of Analysis of Variance for Attribution to Effort

Cell Means Within Each Cell

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	5.44 (18)[a]	4.39 (18)	3.92 (12)	4.46 (13)
Other-Empathy	6.50 (16)	3.28 (18)	6.00 (13)	2.86 (14)
Other-No Empathy	6.85 (13)	6.50 (18)	7.44 (16)	5.54 (13)

Cell Means Collapsed Across Locus of Control

	Pass	Fail
Self	4.68 (30)[a]	4.43 (31)
Other-Empathy	6.25 (29)	3.07 (32)
Other-No Empathy	7.14 (29)	6.02 (31)

Summary of Analysis of Variance

Source	SS	df	MS	F
Locus of Control (A)	9.313	1	9.313	1.078
Self-Other Attribution (B)	154.448	2	77.224	8.942**
Performance (C)	102.747	1	102.747	11.898**
A X B	2.181	2	1.090	0.126
A X C	0.020	1	0.020	0.002
B X C	67.009	2	33.505	3.880*
A X B X C	18.428	2	9.214	1.067
Experimental Error	1468.081	170	8.636	

[a]Ns for each cell are shown in parentheses.

* $p < .05$

** $p < .01$

of another person with whom one was empathic, there was greater attribution to effort after success ($\bar{X}$=6.25) than after failure ($\bar{X}$= 3.07) $F(1, 170) = 17.81$, $p < .01$). Also, after successful performance, there was greater attribution to effort when the performance involved was that of another person with whom there was no empathy ($\bar{X}$=7.14) than when the attributions concerned one's own performance ($\bar{X}$=4.68), $F(2, 170) = 10.33$, $p < .05$. Other differences between means in the B X C interaction were not significant.

In summary, both internal attribution components demonstrated a significant main effect for Self-Other Attribution in accordance with Hypothesis I plus a significant main effect for Performance. F-ratios were greatest for attribution to effort. Neither of the internal attribution components showed any support for Hypothesis II.

Attribution to Task Difficulty. Cell means and a summary of the analysis of variance for attribution to task difficulty, an external attribution component, appear in Table 6. There were no significant ($p < .05$) main effects or interactions. Explanation of performance by attribution to task difficulty was almost the same for the performance of others with whom there was no empathy ($\bar{X}$=5.83) as for the performance of others with whom there was empathy ($\bar{X}$=5.78) or for one's own performance ($\bar{X}$=6.03). Also, attribution to task difficulty was not significantly different after success ($\bar{X}$=5.93) as compared to failure (X=5.83).

The Self-Other Attribution (B) by Performance (C) interaction approached significance, $F(2, 170) = 2.52$, $p < .10$. However, as the trends in this interaction are not consistent with the B X C inter-

Table 6

Cell Means and Summary of Analysis of Variance for Attribution to Task Difficulty

Cell Means Within Each Cell

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	6.44 (18)[a]	6.28 (18)	6.25 (12)	5.15 (13)
Other-Empathy	5.75 (16)	5.17 (18)	6.77 (13)	5.43 (14)
Other-No Empathy	4.54 (13)	7.11 (18)	5.81 (16)	5.85 (13)

Cell Means Collapsed Across Locus of Control

	Pass	Fail
Self	6.35 (30)[a]	5.71 (31)
Other-Empathy	6.26 (29)	5.30 (32)
Other-No Empathy	5.18 (29)	6.48 (31)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)	.001	1	.001	.001
Self-Other Attribution (B)	2.136	2	1.068	0.121
Performance (C)	0.416	1	0.416	0.047
A X B	12.521	2	6.260	0.710
A X C	22.055	1	22.055	2.500
B X C	44.377	2	22.188	2.515
A X B X C	7.157	2	3.578	0.406
Experimental Error	1499.719	170	8.822	

[a]Ns for each cell are shown in parentheses.

action for luck, the other external attribution component (see Table 7), and because the interactions were not central to the hypotheses being tested, cell means are presented in Table 6 only as supplementary information.

Attribution to Luck. Cell means and a summary of the analysis of variance for attribution to luck, the second external attribution component, are presented in Table 7. As with attribution to task difficulty, there were no significant ($p < .05$) main effects or interactions. Attributions to luck for the performance of others for whom there was no empathy ($\bar{X}=3.01$) were not significantly different from attributions for the performance of others with whom subjects were empathic ($\bar{X}=3.39$) or for the performance of subjects themselves ($\bar{X}=2.58$). Nor was there any significant difference between attribution to luck after success ($\bar{X}=3.07$) and attribution to luck after failure ($\bar{X}=2.92$).

The Self-Other Attribution (B) by Performance (C) interaction approached significance, $F(2, 170) = 3.00$, $p < .10$. As above, because this interaction is not consistent with the B X C interaction for task difficulty, the other external attribution component (see Table 6), and because the interaction is not central to the hypotheses being investigated, the cell means are presented in Table 7 only as supplementary information.

In summary, the external or impersonal attribution components demonstrated no significant differences in attribution. Thus they offered no support for either Hypothesis I or II.

Table 7

Cell Means and Summary of Analysis of Variance for Attribution to Luck

Cell Means Within Each Cell

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	1.78 (18)[a]	2.89 (18)	2.50 (12)	3.15 (13)
Other-Empathy	2.81 (16)	3.56 (18)	3.69 (13)	3.50 (14)
Other-No Empathy	3.00 (13)	1.94 (18)	4.62 (16)	2.46 (13)

Cell Means Collapsed Across Locus of Control

	Pass	Fail
Self	2.14 (30)[a]	3.02 (31)
Other-Empathy	3.25 (29)	3.53 (32)
Other-No Empathy	3.81 (29)	2.20 (31)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)	19.304	1	19.304	2.317
Self-Other Atrribution (B)	19.466	2	9.733	1.168
Performance (C)	1.008	1	1.008	0.121
A X B	3.825	2	1.913	0.230
A X C	7.722	1	7.722	0.927
B X C	50.051	2	25.026	3.003
A X B X C	0.842	2	0.421	0.051
Experimental Error	1416.552	170	8.333	

[a]Ns for each cell are shown in parentheses.

Results from the General Performance Questionnaire

In the General Performance Questionnaire, subjects were faced with the task of explaining performance in two situations: (1) performance on an exam; and, (2) performance at a game. Subjects were simply asked to write answers to a open ended question about why performance (success or failure) in each of the two situations occurred the way it did. Each subject's first answer for each situation was classified as either internal (score of 1) or external (score of 2). In addition to the experimenter, a second person, a non-student naive as to the purpose of the study, rated the subjects responses. As with the dependent measures already investigated, the experimenter's scores for each subject's attributions in each situation were investigated in a 2 X 3 X 2 unweighted means analysis of variance with Locus of Control, Self-Other Attribution, and Performance as factors. The results are reported for each situation separately below.

Performance on an Exam. Subject's answers concerning performance on an exam were generally easily scored. Correlation between the experimenter's and the naive rater's scores was .95. A sample of the subjects' responses and the way they were scored appears in Table 8. One difficulty in scoring these responses concerned interpretation of a subject's use of 'sickness' or 'being tired' as a reason for failing an exam. While this is a medical model type of excuse tending to remove responsibility from the subject, it is nevertheless an internal or personal explanation and in the cases where it occurred it was scored as internal for purposes of analysis. It should also be noted

Table 8

Examples of Subjects' Attributions and Scoring in The Exam Situation

Attribution	Score [a]
studied hard	1
worked hard in class	1
understood the work	1
lack of ability	1
home life prevents study	2
intelligent	1
nerves	1
lack of attention to teacher	1
just happened to study the right things	2
easy	2

[a] an internal attribution was scored 1 and an external attribution was scored 2.

that during debriefing a few subjects indicated that they considered the question to refer to the anagrams test which they had either just completed or had explained to them. However, for the most part, subjects appeared to associate this situation with the general concept of an examination. There was no way of determining for certain each subject's referent (anagrams test or exams in general) and this confusion may be a source of experimental error.

Cell means and a summary of the analysis of variance for subjects' attributions for performance on an exam are presented in Table 9. It is evident from the cell means that it was far more common for subjects to make an internal rather than an external attribution for performance.

The only significant result was a main effect for Self-Other Attribution, $F(2, 170) = 7.47$, $p < .01$. Subjects attributed their own performance less to internal sources ($\bar{X}=1.16$) than the performance of others regardless of whether empathy was present ($X=1.03$), $F(2, 170) = 84.50$, $p < .01$, or absent ($\bar{X}=1.00$), $F(2, 170) = 128.00$, $p < .01$, $df= 2/170$, $p < .01$. Hypothesis I was therefore only partially supported as empathy made no difference to the attributions for the performance of others.

There was no difference in attribution for successful performance ($\bar{X}=1.06$) as compared to unsuccessful performance ($\bar{X}=1.06$).

Performance at a Game. Subject's attributions concerning performance at a game were also generally easily scored, although scoring was more difficult than in the case of the exam situation. The correlation between the experimenter's and the naive rater's scores

Table 9

Cell Means and Summary of Analysis of Variance for Attributions in the Exam Situation

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	1.06 (18)[a]	1.17 (18)	1.25 (12)	1.15 (13)
Other-Empathy	1.00 (16)	1.06 (18)	1.08 (13)	1.00 (14)
Other-No Empathy	1.00 (13)	1.00 (18)	1.00 (16)	1.00 (13)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)	0.051	1	0.051	0.943
Self-Other Attribution (B)	0.807	2	0.403	7.472*
Performance (C)	0.001	1	0.001	0.009
A X B	0.073	2	0.037	0.676
A X C	0.143	1	0.143	2.641
B X C	0.002	2	0.002	0.023
A X B X C	0.082	2	0.041	0.756
Experimental Error	9.176	170	0.054	

[a] Ns for each cell are shown in parentheses.

*$p < .01$

was .87. Examples of the subjects' answers and the way in which they were scored appear in Table 10.

The main problem in scoring attribution in the game situation was due to a subject's distinction between team and individual games of sport. For purposes of analysis the references to team spirit and the references to teamwork were scored as external attributions, that is, things beyond the individual's control. References to team ability and team effort were scored as internal attributions. While such guidelines are less than satisfactory, they were subjectively arrived at after carefully reading all subjects answers and considering whether internality or externality was most commonly associated with 'team' answers. For example, team ability which was scored internally was often associated with lack of practice or effort while lack of teamwork, scored externally, was often associated with having a bad day. Because of the format of the General Performance Questionnaire, there was no way of determining for each subject exactly the meaning of 'team' answers or, in many cases whether the individual's referent was a team or an individual.

It became apparent during debriefing that some subjects associated the word game with the concept of chance (as in cards) although most subjects associated game with the idea of skill in sports and this too may have contributed to error in scoring these answers. Again, however, exact determination of these referents for each subject was not possible due to the format of the questionnaire.

Cell means and a summary of the analysis of variance for subjects' attribution for performance at a game are given in Table II. As was

Table 10

Examples of Subjects' Attributions and Scoring in The Game Situation

Attribution	Score [a]
practiced longer	1
skill	1
no desire to win	1
bad luck	2
used poor strategy	1
just played a bad game	2
careless	1
team work	2
pressure too great	2
having a knowledge of the game	1

[a] an internal attribution was scored 1 and an external attribution was scored 2.

Table 11

Cell Means and Summary of Analysis of Variance for Attributions in the Game Situation

Cell Means Within Each Cell

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	1.06 (18)[a]	1.39 (18)	1.55 (12)	1.15 (13)
Other-Empathy	1.19 (16)	1.22 (18)	1.15 (13)	1.29 (14)
Other-No Empathy	1.00 (13)	1.28 (18)	1.06 (16)	1.17 (13)

Cell Means Collapsed Across Self-Other Attribution

	Pass	Fail
Internals	1.08 (47)[a]	1.30 (54)
Externals	1.25 (41)	1.20 (40)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)	0.068	1	0.068	0.442
Self-Other Attribution (B)	0.740	2	0.370	2.419
Performance	0.292	1	0.292	1.907
A X B	0.181	2	0.090	0.591
A X C	0.780	1	0.780	5.097*
B X C	0.353	2	0.176	1.154
A X B X C	1.279	2	0.639	4.179*
Experimental Error	25.701	168	0.153	

[a]Ns for each cell are shown in parentheses.
* $p < .05$

the case for the exam situation, it is apparent from the cell means that, for the game situation, attributions tended to be personal rather than impersonal.

Although nonsignificant, the main effect for Self-Other Attribution approached significance, $F(2, 168) = 2.42$, $p < .10$. The apparent trend was consistent with the expectations of Hypothesis I. Attributions for another's performance where empathy was absent tended to be more internal ($\bar{X}=1.13$) than attributions for another's performance where empathy was present ($\bar{X}=1.21$) or attributions for one's own performance ($X=1.28$).

The main effect for perfomance was also nonsignificant; however, the means were consistent with other results. Attributions for successful performance ($\bar{X}=1.17$) were more internal than attributions for failure ($\bar{X}=1.25$).

The Locus of Control (A) by performance (C) interaction was significant $F(1, 168) = 5.10$, $p < .05$. Application of the Scheffe test revealed that internals were significantly more internal in their attributions after success ($\bar{X}=1.08$) than after failure ($\bar{X}=1.30$), $F(1, 168) = 3.36$, $p < .10$. There was no significant difference between the attributions of externals after success ($\bar{X}=1.25$) as compared to failure ($\bar{X}=1.20$) nor were any other differences in the A X C interaction significant.

The Locus of Control (A) by Self-Other Attributions (B) by Performance (C) interaction also proved significant $F(2,168) = 4.17$, $p < .05$. Application of the Scheffe test to the means as presented

in Table 11 revealed only one significant difference. For subjects who were making attributions about their own successful performance at a game, internals were significantly more internal in their attributions ($\bar{X}$=1.06) than were externals ($\bar{X}$=1.55), $F(1, 168) = 4.51$, $p < .05$.

In summary, with respect to the Hypotheses being tested, attributions for performance at a game showed a nonsignificant trend in the direction anticipated by Hypothesis I. Hypothesis II was unsupported.

Ancillary Analyses

Interpersonal trust had been considered a potential moderator variable for I-E Locus of Control (see p. 51). Consequently the analyses reported above were redone with high and low interpersonal trust as a fourth factor. No consistent results were obtained.

Similarly, all reported analyses were redone using Nowicki-Strickland Locus of Control Scale Scores as a measure of locus of control in place of Rotter's (I-E) Scale. These analyses did not add additional meaningful information beyond that already reported.

One additional dependent measure, net attribution to stable sources, was derived as follows: (attribution to ability plus attribution to task difficulty) minus (attribution to effort plus attribution to luck). This dependent measure, when investigated in the analysis of variance designs already reported produced generally nonsignificant results.

All of these ancillary analyses can be found in appendices H through K.

Chapter IV

DISCUSSION

Hypothesis I stated that there would be a significant main effect for Self-Other attribution such that: (1) the behaviour of one's self or of another person with whom one was empathic would be attributed to external impersonal factors; while, (2) the behaviour of another person with whom one was not empathic would be attributed to internal personal factors. The results offered some support for this hypothesis.

This prediction was based on the Jones and Nisbett (1971) review of extant studies concerning self versus other attribution in which they concluded that actors make external impersonal attributions for their behaviour and that observers make internal personal attributions for the behaviour of others whom they view.

It is particularly relevant for the present study to note that the dynamics which underly the Jones and Nisbett contention are primarily cognitive. They believe that actors tend to attribute the cause of their behaviour to stimuli inherent in the situation while observers tend to attribute behaviour to the stable dispositions of the actor they observe. Such attributions are consequences of the fact that: (1) the amount of information available to the actor is greater than the amount available to the observer; and, (2) the information which is available is processed differently by the actor than by the observer. It is the first of these reasons which is important for there was a major difference in the amount of information available in the condition in which subjects were asked to make attributions for their own behaviour as compared to the condition in which

subjects were asked to make attributions for the behaviour of another person toward whom they felt no empathy. When explaining their own behaviour, subjects had experience with all ten anagrams, which included being exposed to the pressure of a thirty second time limit on the completion of each anagram, and coping with either success or failure at the task. In the "Other Behaviour-No Empathy Condition" the subjects total information was based on a brief description of the anagrams task and presentation of one anagram which was solved for them. Clearly, information available to explain performance was different in the two cases. In the "Other Behaviour-No Empathy Condition", Jones and Nisbett would expect subjects to fill the information void using modal explanations based heavily on assumed personality dispositions of the "other" whose behaviour was being explained. Operationally, in the present study, this meant making more internal, personal attributions for behaviour in the "Other Behaviour-No Empathy Condition" than in the "Attribution of Own Behaviour Condition". Such differences in attribution were clearly evident when net attribution to personal sources, total attribution to personal sources, attribution to ability or effort, or attribution for performance on an exam served as dependent measures.

An even more subtle test of the dynamics underlying the Jones and Nisbett prediction was in the use of the empathy condition in self versus other attribution. Here the basic question was, could the usual findings concerning differences between attribution of one's own behaviour versus attribution of another's behaviour be nullified by making equal information available in both conditions. The process

of making equal information available was part of what was meant by creating empathy. Jones and Nisbett presumed that the more an observer was set to empathize with an actor, the more similar their attributional perspectives would be. Asking a subject to make attributions for the behaviour of another person but first actually putting the subject through the behavioural experience (anagrams test) that the other person purportedly underwent in fact increase the subject's information level about anagram test performance. Further, presumably this information level would be identical to that of the subject who was asked to make attributions for his own performance on the test. Because of this similarity of information, attributions in the two situations could be expected to be identical even though in one situation the attribution concerned one's own behaviour while in the other situation attributions were directed at the performance of another person. Results clearly showed no differences in attribution between the "Self" and "Other Behaviour-Empathy Conditions" when net attribution to personal sources, total attribution to personal sources, and attribution to ability or effort served as dependent measures.

Hypothesis II stated that there would be a significant interaction between Locus of Control, Self-Other Attribution, and Performance such that: (1) internals explaining their own behaviour or the behaviour of another with whom they were empathic would make internal attributions for success and external attributions for failure, while, under the same circumstances, externals would make external attributions for success and internal attributions for failure; and, (2) both internals

and externals explaining the behaviour of another person with whom they did not empathize would make external attributions for either success or failure. Results offered no support for Hypothesis II.

While the self versus other performance portion of this three factor interaction clearly followed from the Jones and Nisbett (1971) prediction, the introduction of locus of control and performance in the hypothesis was based on results of Gilmor and Minton (1974) and Garrett and Minton (1975). Both these studies had confirmed that internals made significantly more internal attributions after success than after failure. Both studies also found a nonsignificant trend for externals to make more external attributions for performance after success than after failure. Gilmor and Minton termed this a 'self-serving' pattern of attribution because, for example, the internal was able to claim his success was his own while his failure was the fault of the environment and it was here that the motivational aspect of empathy was introduced.

Hypothesis II attempted to demonstrate that with respect to attribution for one's own behaviour or the behaviour of another with whom one felt empathy the Jones and Nisbett formulation was incomplete as it was based only on a cognitive approach to the exclusion of personality and motivational considerations. The self-serving pattern of attribution was expected to demonstrate that, contrary to the Jones and Nisbett prediction, both internal and external attributions would be applied to one's own behaviour if they served to maintain one's self concept. It

was also expected that where a subject was asked to explain another person's behaviour, the self-serving pattern of attribution would again be apparent if the subject could be made to experience the inconsistencies in self-concept which another person who had passed or failed might feel, that is, if the subject could be made to feel empathy with the other person whose performance he was asked to explain. The only condition where the Jones and Nisbett formulation was expected to be adequate was in the case where the subject was asked to explain the behaviour of another person towards whom he felt no empathy. In such a case, only internal attributions would be expected.

As already noted, Hypothesis II was unsupported even by a non-significant trend. In the face of this lack of support for Hypothesis II one is confronted with two courses: (1) assume that the Jones and Nisbett formulation concerning the attributions of own versus another's behaviour is adequate with it's primary emphasis on cognition; or (2) assume that the present study was an inadequate test of the necessity for personality and motivational dynamics to be included in the Jones and Nisbett formulation. The second course of action seems the most acceptable for two reasons, one of which is negative - it accepts the second course because the first course is not justified - while the other is positive - it accepts the second course because that possibility seems inherently reasonable.

The negative reason for rejecting the first course is that to accept it means ignoring the self-serving pattern of attribution demon-

strated by Gilmor and Minton (1974) and Garrett and Minton (1975). Both of these studies have demonstrated the role of motivation in the manifestations of an individual's belief in his locus of control. Yet, at least two other relevant studies using an anagrams test (Davis and Davis, 1972; Lefcourt, 1974) have failed to demonstrate this pattern of attribution. Thus, evidence for self-serving attribution at first seems equivocal. However, it has been suggested that both the Davis and Davis and the Lefcourt study were not adequate tests of self-serving attribution. In the Davis and Davis study the success-failure manipulation may have been faulty through cueing subjects to associate performance with internal attribution. In the case of the Lefcourt study, it has been explained that subjects were aware of increasing difficulty of the anagrams they were asked to solve which thus biased their attribution toward externality (task difficulty).

Krovetz (1974) using a linguistic task and Luginbuhl and Crowe (1975) using a pattern discrimination task also failed to demonstrate a self-serving pattern of attribution. In addition, while Krovetz, found some relation between locus of control and attribution, Luginbuhl and Crowe did not, thereby further confusing already inconsistent results. However, Gilmor and Reid (1975) have offered a potential explanation for the inconsistencies in all of the above mentioned studies including the present one. Specifically they suggested that the often contradictory findings could result from 1) failure to consider the reinforcement value of the performance task, and 2) failure

to determine the extent of the consitency between a subject's generalized expectation for locus of control and his specific situational expectation. Employing these two considerations they were able to demonstrate a relationship between locus of control and attribution and a trend toward self-serving attribution. Consequently, in view of the methodological and conceptual problems outlined above, rejection of the existence of the self-serving pattern of attribution is difficult because no study appears to be directly contradictory. The present study might be considered contradictory since the methodology was almost identical to that of Gilmor and Minton and Garrett and Minton but the results were different in that the present study showed no relationship between attribution and locus of control. However, as explained below, the present study used a somewhat different subject population.

The positive reason for accepting the second course is based on Rotter's (1966) claim that locus of control is learned over time particularly in the sense that one's perception of his locus of control becomes more generalized across situations over time. This time factor may be an important difference between the present study and those of Gilmor and Minton or Garrett and Minton. The latter two studies were performed on subject populations drawn for the most part from first year university students. Subjects in the present study were drawn largely from the 11th grade with a few from grade 12. This approximately three year age difference covers a period when achievement is becoming more and more stressed. Certainly there are great differences in the

achievement environment and achievement motivation of first year university students as compared to students midway through highschool. In this regard, it is interesting to note that when the dependent measure was attribution for performance at a game (General Performance Questionnaire) there was some evidence for a self-serving pattern of attribution for internals. Internals were significantly more internal in their attribution after success than after failure. Perhaps, of all the dependent measures, the game situation (most often related to sports) comes closest to arousing among intermediate highschool students a need to maintain one's self-concept. An emphasis on competitive sports is central to the highschool experience for most males. The notion that the competitive sports is more salient for highschool students than the anagrams test is in effect a specific example of the Gilmor and Reid emphasis on the reinforcement value of the task. In summary, the highschool population used in the present study may have differed from the college population in previous studies in two ways: (1) the highschool students may have had a less well developed expectancy for locus of control; and (2) the anagrams task may have had a low reinforcement value for the highschool population. Such post hoc reasoning should be viewed with caution and perhaps considered as an area for future research.

The one other prominent result was the finding of a main effect for performance when net attribution to personal sources, total attribution to personal sources, and attribution to ability or effort served as the dependent measures. Attributions for success were more

internal or personal than attributions for failure. This finding is in accord with the results of Gilmor and Minton (1974), Fitch (1970), and Weiner et al (1971). The explanation offered for this effect involves ego defensive strategies. Specifically, attributing task outcome to external impersonal sources after failure supposedly minimizes loss of self-esteem, while attributing task outcome to internal personal sources after success maximizes self-esteem.

Across the several dependent measures analyzed, there was a good deal of inconsistency in the results. The major findings of the study were evident when net attribution to personal sources, total attribution to personal sources, and attribution to ability or effort were the dependent measures. Ability and effort, of course, were central to the derivation of the total and net scores. It was noted that when attribution to effort served as the dependent measure, the results were more significant (higher F-ratios) than for attribution to ability. This is consistent with the results of Frieze (1974). Garrett and Minton (1975) also found effort to be the most sensitive of the individual attribution components, although they demonstrated the self-serving pattern of attribution only with the net attribution to personal sources score. In the Garrett and Minton study, ability was not as sensitive a dependent measure as it appeared in the present study, nor did they find attribution to task difficulty or luck to be consistently sensitive to differences in attribution. The special sensitivity of the effort dependent measure seems reasonable as it is very closely related to the essence of the concept of locus of control. The effort one expends

comes from within and it can be varied to affect personal efficacy. Again, however, caution in interpreting results is important as Gilmor and Reid demonstrated that the causal components (ability, effort, luck, and task difficulty) were differentially perceived as a function of individual and situational variables.

The use of the General Performance Questionnaire with the exam and game situations was exploratory in nature. When attributions for performance in the exam situation served as the dependent measure, the only significant result was a main effect for Self-Other Attribution which, as noted above, offered only partial rather than complete support for Hypothesis I. When the game situation served as a dependent measure, none of the significant main effects found on the Post-Performance Questionnaire were evident. On the other hand, attribution scores derived from the game situation demonstrated a significant Locus of Control by Performance interaction which was the only evidence for a self-serving pattern of attribution offered by any dependent measure used in the study. Attribution for performance in the game situation also resulted in a significant Locus of Control by Self Other by Performance interaction. For subjects who were making attributions about their own successful performance at a game, internals were significantly more internal in their attributions than were externals. This finding was consistent with the results of Gilmor and Minton and Garrett and Minton.

It seems clear that the failure of the General Performance Questionnaire to produce significant results comparable to the Post-Performance Questionnaire may well have been due to the failure to define the exam

and game situations clearly. It should be possible to describe these situations in a way which would clearly specify the type of exam or game and thereby ensure more uniformity of stimulus (the situation) across subjects. This would not defeat the purpose of the General Performance Questionnaire which, through open ended questions, was supposed to allow subjects the opportunity of responding verbally without the constraints of the four (ability, effort, luck, task difficulty) attribution scales. The fact that the subjects' responses were coded relatively easily as is apparent from the inter-rater reliability coefficients suggests that this type of attribution measure deserves more attention.

Conclusions

The present study sought to test the Jones and Nisbett (1971) contention that actors make external attributions for their behaviour while observers make personal or internal attributions for the behaviour of others whom they view. It was also intended to demonstrate that a more complete account of differences in attribution could be achieved by considering a personality trait approach (locus of control) and motivation (preservation of one's self concept).

The Jones and Nisbett prediction was confirmed. Subjects' attributions for the performance of another person with whom they were not empathic were more external or impersonal than subjects' attributions for their own performance. However, where subjects did feel empathic toward another person, attribution for that other person's performance did not differ from subjects' attributions for their own performance.

Since increasing the degree of empathy in effect increased the amount of information a subject had about another person's performance, these results also provided support for the dynamics underlying the Jones and Nisbett prediction. That is, the more information an observer possesses about an actors behaviour, the more external or impersonal will be the causal attributions which the observer makes concerning the actor's behaviour. This change in information level was in fact the operational definition of the meaning of empathy. It is not certain that empathy, as manipulated in this study, actually involved taking another person's point of view. Although subjects were asked to explain the behaviour of another person, they may not have taken the other person's perspective but instead used their own emotional reaction to the anagram test as a basis for making attributions. Future research should attempt to vary emotional reaction and information level independent of one another.

The attempt to demonstrate that a personality trait approach and motivation were important in differences in self-other attribution was unsuccessful. There were no differences in attribution as a function of an interaction between locus of control, self-other attribution, and performance. However, failure to replicate the Gilmor and Minton (1974) and Garrett and Minton (1975) demonstration of a self-serving pattern of attribution was taken as indicative of two possible problems in the experimental methodology of the present study. First, it may have been that since a generalized expectation for locus of control is learned over time, use of a younger subject population in the present

experiment as compared to the Gilmor and Minton and Garrett and Minton studies may have been responsible for the failure to show a three factor interaction. Second, the reinforcement value of the anagrams test may have held little reinforcement value for the highschool population.

Further investigation is still needed into the type of dependent measure used in attribution studies. Consistent with the Garrett and Minton (1975) and Frieze (1974) studies, the most sensitive of the four individual attribution components appeared to be attribution to effort, a personal attribution component. The only other individual attribution component to show significant results was ability, also a personal attribution component. Perhaps the personal attribution components are more salient when compared to the impersonal attribution components of luck and task difficulty because of a cultural emphasis on personal efficacy (eg. via the Protestant Ethic). Consistent with the Garrett and Minton (1975) study which used a similar experimental procedure, net attribution to stable sources did not reflect significant differences in causal attribution. There was however, a large within subjects variation in net attribution to stable sources. Finally, it should be remembered that Garrett and Minton were only able to show a self-serving pattern of attribution using a net attribution to personal sources score and that Gilmor and Reid showed perception of the causal components to be dependent on individual and situational factors. Thus, present results notwithstanding, sensitivity of the causal components to changes in attribution may vary as a function of experimental manipulation.

The General Performance Questionnaire was largely ineffective as

a dependent measure although, over the entire study, only attributions for performance in the game situation presented in the questionnaire showed any evidence of a self-serving pattern of attribution. In addition, since it seems easily scored, it may be valuable to attempt to refine the open ended format of the General Performance Questionnaire for future use.

In summary, the study offered strong support for the Jones and Nisbett conceptualization of differences in attribution for behaviour between an actor and an observer. The attempt to incorporate personality trait and motivational approaches into their cognitive scheme was unsuccessful.

REFERENCES

Aderman, D. & Berkowitz, L. Observational set, empathy, and helping. Journal of Personality and Social Psychology, 1970, 14, 141-148.

Allport, G. W. & Odbert, H. S. Trait-names: A psycho-lexical study. Psychological Monographs, 1936, 47 (Whole No. 211).

Bandura, A. & Walters, R. H. Social Learning and personality development. New York: Holy, Rinehart, & Winston, 1963.

Battle, E. & Rotter, J. B. Children's feelings of personal control as related to social class and ethnic group. Journal of Personality, 1963, 31, 482-490.

Bialer, I. Conceptualization of success and failure in mentally retarded and normal children. Journal of Personality, 1961, 29, 303-320.

Cattell, R. B. Confirmation and clarification of primary personality factors. Psychometrika, 1947, 12, 197-220

Cattell, R. B. Personality and motivation:Structure and measurement. Yonkers-on Hudson: World Book, 1957.

Crandall, V. C., Crandall, V. J., & Katkovsky, W. A children's social desirability questionnaire. Journal of Consulting Psychology, 1965, 29, 27-36

Davis, W. L. & Davis, D. E. Internal-external control and attribution of responsibility for success and failure. Journal of Personality, 1972, 40, 123-135.

Dies, R. R. I-E control, need for social approval, and blame assignment. Unpublished doctoral dissertation, University of Connecticut, 1963.

Feather, N.T. Attribution of responsibility and valence of success and failure in relation to initial confidence and task performance. Journal of Personality and Social Psychology, 1969, 13, 129-142.

Feather, N. T. & Simon, J. G. Causal attribution for success and failure in relation to expectations of success based upon selective or manipulative control. Journal of Personality, 1971, 39, 527-541.

Fitch, H. G. Effects of self-esteem, perceived performance, and choice of causal attribution. Journal of Personality and Social Psychology, 1970, 16, 311-325.

Frieze, I. H. Causal attribution and information seeking to explain success and failure. Unpublished doctoral doctoral dossertation, University of California at Los Angeles, 1974.

Garrett, W. A. & Minton, H. L. Locus of control, success-failure outcome, and task norms as factors in internal and external attribution of task performance. Paper presented at the meeting of the Canadian Psychological Association, Quebec City, June, 1975.

Gilmor, T. M. & Minton, H. L. Internal versus external attribution of task performance as a function of locus of control, initial confidence, and success failure outcome. Journal of Personality, 1974, 42, 159-174.

Gilmor, T. M. & Reid, D. W. Causal attribution, locus of control, and the viability of Weiner's causal components model. Unpublished manuscript, York University, 1975.

Gurin, P., Gurin, G., Lao, R. & Beattie, M. Internal-external control in the motivational dynamics of Negroe youth. Journal of Social

Issues, 1969, 25, 29-53.

Heider, F. The psychology of interpersonal relations. New York: Wiley, 1958.

Hersch, P. D. & Scheibe, K. E. On the reliability and validity of internal external control as a personality dimension. Journal of Consulting Psychology, 1967, 31, 609-614.

Hochreich, D. J. Refined analysis of internal-external control and behavior in a laboratory situation. Unpublished doctoral dissertation, University of Connecticut, 1968.

Hochreich, D. J. Defensive externality and attribution of responsibility. Journal of Personality, 1974, 42, 558-568.

Joe, V. C. Review of the internal-external control construct as a personality variable. Psychological Reports, 1971, 28, 619-640.

Jones, E. E. & Davis, K. E. From acts to dispositions: The attribution process in person perception. In L. Berkowitz (Ed.), Advances in experimental social psychology, Vol. 2. New York: Academic Press, 1965, 219-226.

Jones, E. E. & DeCharms, R. Changes in social perception as a function of the personal relevance of behaviour. Sociometry, 1957, 20, 75-85.

Jones, E. E. & Harris, V. A. The attribution of attitudes. Journal of experimental social psychology, 1967, 3, 1-24.

Jones, E. E. & Nisbett, R. E. The actor and the observer: Divergent perceptions of the causes of behaviour. New York: General Learning Press, 1971.

Jones, E. E., Rock, L., Shaver, K. G., Goethals, G., & Ward, L. Pattern

of performance and ability attribution: An unexpected primacy effect. Journal of Personality and Social Psychology, 1968, 10, 317-340.

Krovetz, M. L. Explaining success or failure as a function of one's locus of control. Journal of Personality, 1974, 42, 175-189.

Lackey, L. Attribution of responsibility as a function of perceived similarity, outcome intensity, and locus of control. Dissertation Abstracts International, 1969, 30, (1-B) 409.

Lazarus, R. S. Psychological stress and the coping process. New York: McGraw-Hill, 1966.

Lefcourt, H. M., Hogg, E., Struthers, S., & Holmes, C. Causal attributions as a function of locus of control, initial confidence, and performance outcomes. Journal of Personality and Social Psychology, (in press).

Luginbuhl, J. E. R., Crowe, D. H. & Kahan, J. P. Causal attributions for success and failure. Journal of Personality and Social Psychology, 1975, 31, 86-93.

McArthur, L. Z. The how and what of why: Some determinants and consequences of causal attribution. Unpublished doctoral dissertation, Yale University, 1970.

Medway, F. J., Lowe, C. A. & Baron, R. M. Different blames for different names: Divergent self-other attributions for success and failure. Paper presented at the meeting of the Midwestern Psychological Association, Chicago, May, 1975.

Miller, D. T. & Norman, S. A. Actor-observer differences in perceptions of effective control. Journal of Personality and Social Psychology, 1975, 31, 503-515.

Minton, H. L. Internal-external control and the distinction between personal control and system modifiability. Paper presented at the meeting of the Midwestern Psychological Association, Cleveland, May, 1972.

Mirels, H. L. Dimensions of internal versus external control. Journal of Consulting and Clinical Psychology, 1971, 37, 386-390.

Mischel, W. Personality and assessment. New York: John Wiley & Sons, 1968.

Nisbett, R. E. & Caputo, C. C. Personality traits: Why other people do the things they do. Unpublished manuscript. Yale University, 1971.

Nisbett, R. E., Legant, P. & Marecek, J. The causes of behaviour as seen by actor and observer. Unpublished manuscript. Yale University, 1971.

Norman, W. T. Development of self-report tests to measure personality factors identified from peer nominations. USAF ASK Tech. Note, 1961, No. 61-44.

Norman, W. T. Toward an adequate taxonomy of personality attributes: Replicated factor structures in peer nomination personality ratings. Journal of Abnormal and Social Psychology, 1963, 66, 574-583.

Nowicki, S. & Strickland, B. R. A locus of control scale for children. Journal of Consulting & Clinical Psychology, 1973, 40, 148-155.

Overall, J. E. A note on the scientific status of factors. Psychological Bulletin, 1964, 61, 270-276.

Phares, E. J., Wilson, K. G., & Klyver, N. W. Internal-external control and the attribution of blame under neutral and distractive conditions. Journal of Personality and Social Psychology, 1971, 18, 285-288.

Passini, F. T. & Norman, W. T. A universal conception of personality structure? Journal of Personality and Social Psychology, 1966, 4, 44-49.

Rotter, J. B. Social learning and clinical psychology. Englewood Cliffs, N. J.: Prentice-Hall, 1954.

Rotter, J. B. The role of the psychological situation in determining the direction of human behaviour. Nebraska Symposium on Motivation, 1955, 3, 245-269.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 166, 80 (whole No. 609).

Rotter, J. B. Generalized expectancies for interpersonal trust. American Psychologist, 1971, 26, 443-452.

Scheffe, H. The analysis of variance. New York: John Wiley & Sons, 1959.

Speisman, J. C., Lazarus, R. S., Mordkoff, A. M., & Davison, L. A. The experimental reduction of stress based on ego-defense theory. Journal of Abnormal and Social Psychology, 1964, 68, 367-380.

Tupes, E. C. & Christal, R. E. Stability of personality trait rating factors obtained under diverse conditions. USAF WADC Tech. Note, 1958, No. 58-61.

Tupes, R. E. & Christal, R. E. Recurrent personality factors based on trait ratings. USAF ASD Tech. Rep., 1961, No. 61-97.

Weiner, B. Theories of Motivation: From mechanism to cognition. Chicago: Rand McNally College Publishing Co., 1972.

Winer, B. J. Statistical principles in experimental design. (2nd ed.). New York: McGraw-Hill, 1971.

Wolfson, M. R. & Salancik, G. R. Actor-observer and observer-observer

attributional differences about an achievement task. Paper presented at the meeting of the Midwestern Psychological Association, Chicago, may, 1975.

APPENDIX A

Rotter (1966) I-E Scale

Social Reaction Inventory

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief. Obviously there are no right or wrong answers.

Your answers to the items on this inventory are to be recorded on a separate answer sheet which is attached to the back of the booklet. Remove THIS ANSWER SHEET NOW. Complete all the information requested on the answer sheet, then finish reading these directions.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. Find the number of the item on the answer sheet and cross out the letter which corresponds to the statement you choose as most true.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also, try to respond to each item independently when making your choice; do not be influenced by your previous choices.

REMEMBER

Select that alternative which you personally believe to be more true.

I more strongly believe that:

1. a. Children get into trouble because their parents punish them too much.

   b. The trouble with most children nowadays is that their parents are too easy with them.

2. a. Many of the unhappy things in people's lives are partly due to bad luck.

   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.

   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.

   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.

   b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks one cannot be an effective leader.

   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try some people just don't like you.

   b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.

   b. It is one's experiences in life which determine what they're like.

9. a. I have often found that what is going to happen will happen.

   b. Trusting to fate has never turned out as well for me as making a decisions to take a definite course of action.

10. a. In the case of the well-prepared student there is rarely if every such a thing as an unfair test.

    b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

I more strongly believe that:

11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.

    b. Getting a good job depends mainly on being in the right place at the right time.

12. a. The average citizen can have an influence in government decisions.

    b. This world is run by the few people in power and there is not much the little guy can do about it.

13. a. When I make plans, I am almost certain that I can make them work.

    b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good.

    b. There is some good in everybody.

15. a. In my case getting what I want has little or nothing to do with luck.

    b. Many times we might just as well decide what to do by flipping a coin.

16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

    b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.

    b. By taking an active part in political and social affairs the people can control world events.

18. a. Most people don't realize the exent to which their lives are controlled by accidental happenings.

    b. There really is no such thing as "luck"

19. a. One should always be willing to admit mistakes.

    b. It is usually best to cover up one's mistakes.

20. a. It is hard to know whether or not a person really likes you.

    b. How many friends you have depends upon how nice a person you are.

I more strongly believe that:

21. a. In the long run the bad things that happen to us are balanced by the good ones.

    b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort we can wipe out political corruption.

    b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.

    b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.

    b. A good leader makes it clear to everybody what their jobs are.

25. a. Many times I feel that I have little influence over the things that happen to me.

    b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.

    b. There's not much use in trying too hard to please people; if they like you, they like you.

27. a. There is too much emphasis on athletics in high school.

    b. Team sports are an excellent way to build character.

28. a. What happens to me is my own doing.

    b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. a. Most of the time I can't understand why politicians behave the way they do.

    b. In the long run, the people are responsible for bad government on a national as well as on a local level.

APPENDIX B

Nowicki-Strickland Locus of Control Scale

STUDENT OPINION SURVEY

This is a questionnaire to find out the way in which certain important events in our society affect different people. We are particulary interested in examining how the attitudes and opinions of different aged students differ depending on their age. Each item consists of a question. Please respond to each question by circling either a Yes or a No in the appropriate place on the answer sheet which has been given to you. Be sure to give the answer which actually represents your beliefs, rather than the answer you think you should choose or the one you would like to be true. This is a measure of personal belief. Obviously there are no right or wrong answers.

Please put your name on the answer sheet now, then finish reading these directions. Do not open the booklet until you are told to do so. Your responses will be kept completely confidential. We are interested in comparing the beliefs of groups differing in age, rather than the beliefs of individuals.

Please answer the items carefully but do not spend too much time on any one item. Be sure to answer every item. Also try to respond to each item independently; do not be influenced by your previous answer.

1. Do you believe that most problems will solve themselves if you just don't fool with them?

2. Do you believe that you can stop yourself from catching a cold?

3. Are some kids just born lucky?

4. Most of the time do you feel that getting good grades means a great deal to you?

5. Are you often blamed for things that just aren't your fault?

6. Do you believe that if somebody studies hard enough he or she can pass any subject?

7. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?

8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?

9. Do you feel that most of the time parents listen to what their children have to say?

10. Do you believe that wishing can make good things happen?

11. When you get punished does it usually seem its for no good reason at all?

12. Most of the time do you find it hard to change a friend's (mind) opinion?

13. Do you think that cheering more than luck helps a team to win?

14. Do you feel that it's nearly impossible to change your parent's mind about anything?

15. Do you believe that your parents should allow you to make most of your own decisions?

16. Do you feel that when you do something wrong there's very little you can do to make it right?

17. Do you believe that most kids are just born good at sports?

18. Are most of the other kids your age stronger than you are?

19. Do you feel that one of the best ways to handle most problems is just not to think about them?

20. Do you feel that you have a lot of choice in deciding who your friends are?

21. If you find a four leaf clover do you believe that it might bring you good luck?

22. Do you often feel that whether you do your homework has much to do with what kind of grades you get?

23. Do you feel that when a kid of your age decides to hit you, there's little you can do to stop him or her?

24. Have you ever had a good luck charm?

25. Do you believe that whether or not people like you depends on how you act?

26. Will your parents usually help you if you ask them to?

27. Have you felt that when people were mean to you it was usually for no reason at all?

28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today?

29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?

30. Do you think that kids can get their own way if they just keep trying?

31. Most of the time do you find it useless to try to get your own way at home?

32. Do you feel that when good things happen they happen because of hard work?

33. Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?

34. Do you feel that it's easy to get friends to do what you want them to?

35. Do you usually feel that you have little to say about what you get to eat at home?

36. Do you feel that when someone doesn't like you there's little you can do about it?

37. Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?

38. Are you the kind of person who believes that planning ahead makes things turn out better?

39. Most of the time, do you feel that you have little to say about what your family decides to do?

40. Do you think it's better to be smart than to be lucky?

Rotter Interpersonal Trust Scale

GENERAL BELIEF QUESTIONNAIRE (HIGH SCHOOL FORM)

This is a questionnaire to determine the attitudes and beliefs of different people on a variety of statements. Please answer the statements by giving as true a picture of your own beliefs as possible. Be sure to read each item carefully and show your beliefs by circling the appropriate number on your answer sheet.

If you strongly agree with an item, circle the number 1. Circle number 2 if you mildly agree with the item. That is, circle 2 if you think the item is generally more true than untrue according to your beliefs. Circle number 3 if you feel the item is about equally true as untrue. Circle number 4 if you mildly disagree with the item. That is, circle 4 if you feel the item is more untrue than true. If you strongly disagree with an item, circle number 5.

1 Strongly agree
2 Mildly agree
3 Agree and disagree equally
4 Mildly disagree
5 Strongly disagree

Please be sure to circle a number for each item and to erase completely any answers to be changed. Make no extra marks on either the answer sheet or the questionnaire.

1 Strongly agree 2 Mildly agree 3 Agree and disagree equally

4 Mildly disagree 5 Strongly disagree

1. Most people would rather live in a climate that is mild all year around than in one in which winters are cold.

2. Hypocrisy is on the increase in our society.

3. In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy.

4. This country has a dark future unless we can attract better people into politics.

5. Fear of social disgrace or punishment rather than conscience prevents most people from breaking the law.

6. Parents usually can be relied upon to keep their promises.

7. The advice of elders is often poor because the older person doesn't recognize how times have changed.

8. Using the Honour System of not having a teacher present during exams would probably result in increased cheating.

9. The United Nations will never be an effective force in keeping world peace.

10. Parents and teachers are likely to say what they believe themselves and not just what they think is good for the child to hear.

11. Most people can be counted on to do what they say they will do.

12. As evidenced by recent books and movies morality seems on the downgrade in this country.

13. The judiciary is a place where we can all get unbiased treatment.

14. It is safe to believe that in spite of what people say, most people are primarily interested in their own welfare.

15. The future seems very promising.

16. Most people would be horrified if they knew how much news the public hears and sees is distorted.

17. Seeking advice from several people is more likely to confuse than it is to help one.

18. Most elected public officials are really sincere in their campaign promises.

19. There is no simple way of deciding who is telling the truth.

20. This country has progressed to the point where we can reduce the amount of competitiveness encouraged by schools and parents.

21. Even though we have reports in newspapers, radio and television, it is hard to get objective accounts of public events.

1 Strongly agree 2 Mildly agree 3 Agree and disagree equally
4 Mildly disagree 5. Strongly disagree

22. It is more important that people achieve happiness than that they achieve greatness.

23. Most experts can be relied upon to tell the truth about the limits of their knowledge.

24. Most parents can be relied upon to carry out their threats of punishment.

25. One should not attack the political beliefs of other people.

26. In these competitive times one has to be alert or someone is likely to take advantage of you.

27. Children need to be given more guidance by teachers and parents than they now typically get.

28. Most rumors usually have a strong element of truth.

29. Many major national sport contests are fixed in one way or another.

30. A good leader milds the opinions of the group he is leading rather than merely following the wishes of the majority.

31. Most idealists are sincere and usually practice what they preach.

32. Most salesmen are honest in describing their products.

33. Education in this country is not really preparing young men and women to deal with the problems of the future.

34. Most students in school would not cheat even if they were sure of getting away with it.

35. The hordes of students now going to college are going to find it more difficult to find good jobs when they graduate than did the college graduates of the past.

36. Most repairmen will not overcharge even if they think you are ignorant of their specialty.

37. A large share of accident claims filed against insurance companies are phony.

38. One should not attack the religious beliefs of other people.

39. Most people answer public opinion polls honestly.

40. If we really knew what was going on in international politics, the public would have more reason to be frightened than they now seem to be.

APPENDIX D

Last name: _____

First initials: _____

ANAGRAM TEST BOOKLET: HIGH SCHOOL FORM

Date: _____
day month yr.

The pass form and the fail form of the Anagram Test Booklet contained the following ten anagrams, one anagram centred and appearing alone on each page:

Pass Form	Fail Form
tennsi	sealgt
mmersu	celoub
damaeg	pamlex
teffec	pimcat
bunmer	gnposu
withni	ggawil
onersp	cmagle
strete	meealf
wadnet	ppoerc
policc	bateed

Record your score (the number of anagrams that you solved) in the space below.

Number solved

out of ten: _____

APPENDIX E

Last Name: _____

First Name: _____

POST - PERFORMANCE QUESTIONNAIRE

(Form 2)

Page 1 (self-attribution)

PART 1: For subjects who PASSED the test. (scores of 5 or above)

How a person does at tasks like the one you just completed depends upon a number of factors.

On some occasions, the task is an easy one. Even people who are not very skillful, or who don't try very hard, are successful. On harder tasks these people might not do so well.

Some people succeed mainly because they apply themselves to the task and try hard. In this way they are sometimes able to make up for any lack of skill or for bad luck. Even if the task is difficult, such people may do well. Were they to lose interest and not try so hard, they would probably not do so well.

Other people are successful because they are just lucky enough to get the right combination of letters in the time allowed. They happen to hit upon the right combination of letters largely by chance. They therefore do well, even if they are not particularly skillful or don't try too hard. Given another set of similar anagrams, or even an easier set, they might not do so well.

Some other people succeed because they have skill and ability. These people don't really have to try very hard, even on fairly difficult tasks. And good luck isn't really involved for these people. Given another set of similar anagrams, or even a harder set, they would probably do just as well because they have the ability.

Consider the score that you made on the Anagrams Test. In your case to what extent do you consider that your score was due to each of the following things: the fact that the task was easy; the fact that you tried hard; the fact that you were lucky; the fact that you have skill and ability. Turn to the next page and put an X on each of the lines to indicate your answer to each of these questions. (Turn to page 2)

Feel free to put a cross on any part of a line.

Page 1 (other attribution)

PART I: For subjects who PASSED the test. (scores of 5 or above)

alternately insert "just described to you"

How a person does at tasks like the one/you just completed/depends upon a number of factors.

On some occasions, the task is an easy one. Even people who are not very skillful, or who don't try very hard, are successful. On harder tasks these people might not do so well.

Some people suceed mainly because they apply themselves to the task and try hard. In this way they are sometimes able to make up for any lack of skill or for bad luck. Even if the task is difficult, such people may do well. Were they to lose interest and not try so hard, they would probably not do so well.

Other people are succesful because they are just lucky enough to get the right combination of letters in the time allowed. They happen to hit upon the right combination of letters largely by chance. They therefore do well, even if they are not particularly skillful or don't try too hard. Given another set of similar anagrams, or even an easier set, they might not do so well.

Some other people succeed because they have skill and ability. These people don't really have to try very hard, even on fairly difficult tasks. And good luck isn't really involved for these people. Given another set of similar anagrams, or even a harder set, they would probably do just as well because they have the ability.

Our research has shown that many male students pass this Anagrams Test. These students are about the same age and at the same high school grade level as those you see seated around you at this moment. It would help us to know why you think people like these pass this test. Think of the "pass" performance of these other people. In their case, to what extent do you consider that their score was due to each of the following things: the fact that the task was easy; the fact that they tried hard; the fact that they were lucky; the fact that they have skill and ability. Turn to the next page and put an X on each of the lines to indicate your answer to each of these questions. (Turn to page 2).

Feel free to put a cross on any part of a line.

PART I cont'd: For subjects who PASSED the test. (scores of 5 or above)

Easy task

Not a cause — Somewhat a cause — Very much a cause

Tried hard

Not a cause — Somewhat a cause — Very much a cause

Good luck

Not a cause — Somewhat a cause — Very much a cause

Skill and ability

Not a cause — Somewhat a cause — Very much a cause

Page 3 (self-attribution)

PART 2: For subjects who FAILED the test. (scores below 5)

How a person does at tasks like the one you have just completed depends upon a number of factors.

On some occasions, the task is a difficult one. Even people who are quite skillful, or who try hard, are unsuccessful. On easier tasks these people might do better.

Some people fail mainly because they don't apply themselves to the task and don't try hard. In this way they sometimes fail to take advantage of skill or good luck. Even if the task is easy, such people may do poorly. Were they to take an interest and try harder, they would probably do better.

Other people are unsuccessful because they are just not lucky enough to get the right combination of letters in the time allowed. Their failure is mainly due to bad luck. They do poorly even if they are quite skillful or try quite hard. Given another set of similar anagrams, or even a harder set, they might do better.

Some other people fail because they lack the necessary skill and ability. Trying hard is not enough for such people, even on fairly easy tasks. And poor luck isn't really involved for these people. Given another set of similar anagrams, or even an easier set, they would probably do just as poorly because they lack the necessary ability.

Consider the score that you made on the Anagrams Test. In your case, to what extent do you consider that your score was due to each of the following things: the fact that the task was difficult; the fact that you didn't try hard; the fact that you were unlucky; the fact that you lack the necessary skill and ability. Turn to the next page and put an X on each of the lines to indicate your answer to each of these questions. (Turn to page 4)

Feel free to put a cross on any part of a line.

Page 3 (other attribution)

PART 2: For subjects who FAILED the test. (scores below 5)

alternately insert "just described to you"

How a person does at tasks like the one/you have just completed/depends upon a number of factors.

On some occasions, the task is a difficult one. Even people who are quite skillful, or who try hard, are unsuccessful. On easier tasks these people might do better.

Some people fail mainly because they don't apply themselves to the task and don't try hard. In this way they sometimes fail to take advantage of skill or good luck. Even if the task is easy, such people may do poorly. Were they to take an interest and try harder, they would probably do better.

Other people are unsuccessful because they are just not lucky enough to get the right combination of letters in the time allowed. Their failure is mainly due to bad luck. They do poorly even if they are quite skillful or try quite hard. Given another set of similar anagrams, or even a harder set, they might do better.

Some other people fail because they lack the necessary skill and ability. Trying hard is not enough for such people, even on fairly easy tasks. And poor luck isn't really involved for these people. Given another set of similar anagrams, or even an easier set, they would probably do just as poorly because they lack the necessary ability.

Our research has shown that many male students fail this Anagrams Test. These students are about the same age and at the same high school grade level as those you see seated around you at this moment. It would help us to know why you think people like these fail this test. Think of the "fail" performance of these other people. In their case, to what extent do you consider that their score was due to each of the following things: the fact that the task was difficult; the fact that they didn't try hard; the fact that they were unlucky; the fact that they lack the necessary skill and ability. Turn to the next page and put an X on each of the lines to indicate your answer to each of these questions. (Turn to page 4).

Feel free to put a cross on any part of a line.

PART 2 cont'd: For subjects who FAILED the test. (scores below 5)

Difficult task

Not a cause — Somewhat a cause — Very much a cause

Did not try hard

Not a cause — Somewhat a cause — Very much a cause

Bad luck

Not a cause — Somewhat a cause — Very much a cause

Lack of skill and ability

Not a cause — Somewhat a cause — Very much a cause

APPENDIX F

GENERAL PERFORMANCE QUESTIONNAIRE

(Form I)

Last Name: _____

First Name: _____

(self attribution)

PART I: For subjects who PASSED the test. (scores of 5 or above)

Each sentence below describes an event which might possibly happen. Read the sentence carefully and then, in the space provided, please tell in your own words what you think are the reasons which caused the event to occur.

1. You received a very high score on an exam. Tell why you think this happened.

2. You won a game. Tell why you think this happened.

(other attribution)

Part I: For subjects who PASSED the test. (scores of 5 or above)

Each sentence below describes an event which might possibly happen. Read the sentence carefully and then, in the space provided, please tell in your own words what you think are the reasons which caused the event to occur.

1. A classmate of yours received a very high score on an exam. Tell why you think this happened.

2. A classmate of yours won a game. Tell why you think this happened.

(self-attribution)

PART 2: For subjects who FAILED the test. (scores below 5)

Each sentence below describes an event which might possibly happen. Read each sentence carefully and then, in the space provided, please tell in your own words what you think are the reasons which caused the event to occur.

1. You have just failed an exam. Tell why you think this happened.

2. You lost a game. Tell why you think this happened.

Part 2: For subjects who FAILED the test. (scores below 5)

Each sentence below describes an event which might possibly happen. Read each sentence carefully and then, in the space provided, please tell in your own words what you think are the reasons which caused the event to occur.

1. A classmate of yours just failed an exam. Tell why you think this happened.

2. A classmate of yours lost a game. Tell why you think this happened.

APPENDIX G

Table 12

Intercorrelation of Personality Variables

N= 182	Variable		
Variable	1.	2.	3.
1. Rotter I-E Scale		.42*	-.09
2. Nowicki-Strickland Locus of Control Scale			.01
3. Rotter Interpersonal Trust Scale			

*p < .01

APPENDIX H

Cell Means and Summary of Analyses of Variance: Median Split of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Table 13

Cell Means and Summary of Analysis of Variance for Attribution to Ability: Median Split of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	6.40 (10)[a]	4.00 (7)	6.25 (4)	4.60 (5)
	Lo Trust	6.89 (8)	6.00 (10)	8.14 (7)	5.13 (8)
Other Empathy	Hi Trust	7.00 (9)	6.09 (11)	4.67 (6)	4.40 (5)
	Lo Trust	7.40 (5)	5.33 (6)	5.43 (7)	5.25 (8)
Other No Empathy	Hi Trust	7.40 (5)	6.50 (12)	8.83 (6)	7.14 (7)
	Lo Trust	8.14 (7)	6.50 (6)	7.40 (10)	7.67 (6)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	2.104	1	2.104	0.280
Self-Other Attribution (B)	97.934	2	48.967	6.521*
Performance (C)	66.056	1	66.056	8.797*
Trust (D)	10.053	1	10.053	1.339
A X B	34.924	2	17.462	2.326
A X C	1.431	1	1.431	0.191
A X D	0.019	1	0.019	0.003
B X C	10.274	2	5.137	0.684
B X D	11.483	2	5.742	0.765
C X D	0.026	1	0.026	0.003
A X B X C	6.660	2	3.330	0.443
A X B X D	5.557	2	2.778	0.370
A X C X D	0.312	1	0.312	0.041
B X C X D	2.203	2	1.101	0.147
A X B X C X D	14.200	2	7.100	0.946
Experimental Error	1133.788	151	7.509	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

*$p < .01$

Table 14

Cell Means and Summary of Analysis of Variance for Attribution to Effort: Median Split of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	4.80 (10)[a]	4.00 (7)	5.00 (4)	3.60 (5)
	Lo Trust	6.25 (8)	4.60 (10)	3.43 (7)	5.00 (8)
Other Empathy	Hi Trust	7.44 (9)	3.36 (11)	7.00 (6)	2.00 (5)
	Lo Trust	5.00 (5)	2.83 (6)	5.14 (7)	3.13 (8)
Other No Empathy	Hi Trust	6.80 (5)	5.92 (12)	7.17 (6)	5.71 (7)
	Lo Trust	7.29 (7)	7.67 (6)	7.60 (10)	5.33 (6)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	9.618	1	9.618	1.076
Self-Other Attribution (B)	166.342	2	83.171	9.303**
Performance (C)	109.801	1	109.801	12.282**
Trust (D)	0.059	1	0.059	0.007
A X B	0.668	2	0.334	0.037
A X C	0.524	1	0.524	0.059
A X D	1.314	1	1.314	0.147
B X C	57.976	2	28.988	3.242*
B X D	18.917	2	9.458	1.058
C X D	15.674	1	15.674	1.753
A X B X C	14.495	2	7.247	0.811
A X B X D	11.107	2	5.553	0.621
A X C X D	2.221	1	2.221	0.248
B X C X D	8.505	2	4.253	0.476
A X B X C X D	14.697	2	7.348	0.822
Experimental Error	1349.960	151	8.940	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

* $p < .05$

** $p < .01$

Table 15

Cell Means and Summary of Analysis of Variance for Attribution to Task Difficulty:

Median Split of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	5.90 (10)[a]	5.43 (7)	4.50 (4)	5.20 (5)
	Lo Trust	7.13 (8)	6.70 (10)	7.00 (7)	5.13 (8)
Other Empathy	Hi Trust	5.11 (9)	5.64 (11)	7.00 (6)	4.80 (5)
	Lo Trust	6.40 (5)	4.33 (6)	6.57 (7)	5.88 (8)
Other No Empathy	Hi Trust	3.60 (5)	6.33 (12)	5.50 (6)	6.57 (7)
	Lo Trust	5.57 (7)	8.67 (6)	6.00 (10)	5.00 (6)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.777	1	0.777	0.086
Self-Other Attribution (B)	1.105	2	0.553	0.061
Performance (C)	0.104	1	0.104	0.012
Trust (D)	21.701	1	21.701	2.398
A X B	16.034	2	8.017	0.886
A X C	15.352	1	15.352	1.697
A X D	6.441	1	6.441	0.712
B X C	49.470	2	24.735	2.733
B X D	7.873	2	3.936	0.435
C X D	7.974	1	7.974	0.881
A X B X C	14.208	2	7.104	0.785
A X B X D	18.302	2	9.151	1.011
A X C X D	0.259	1	0.259	0.029
B X C X D	0.880	2	0.440	0.049
A X B X C X D	24.670	2	12.335	1.363
Experimental Error	1366.407	151	9.049	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

Table 16

Cell Means and Summary of Analysis of Variance for Attribution to Luck: Median Split of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

		Cell Means			
		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	2.30 (10)[a]	3.43 (7)	2.25 (4)	4.00 (5)
	Lo Trust	1.13 (8)	2.30 (10)	2.29 (7)	2.63 (8)
Other Empathy	Hi Trust	3.67 (9)	3.91 (11)	5.67 (6)	2.60 (5)
	Lo Trust	1.80 (5)	3.50 (6)	2.00 (7)	3.88 (8)
Other No Empathy	Hi Trust	5.20 (5)	2.25 (12)	3.50 (6)	2.00 (7)
	Lo Trust	1.57 (7)	1.33 (6)	5.29 (10)	3.00 (6)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	12.686	1	12.686	1.536
Self-Other Attribution (B)	19.077	2	9.539	1.155
Performance (C)	0.956	1	0.956	0.116
Trust (D)	28.419	1	28.419	3.440
A X B	2.071	2	1.035	0.125
A X C	4.408	1	4.408	0.534
A X D	18.869	1	18.869	2.284
B X C	56.965	2	28.483	3.448
B X D	3.707	2	1.854	0.224
C X D	13.564	1	13.564	1.642
A X B X C	4.228	2	2.114	0.256
A X B X D	27.418	2	13.709	1.659
A X C X D	0.620	1	0.620	0.075
B X C X D	25.616	2	12.808	1.550
A X B X C X D	21.805	2	10.902	1.320
Experimental Error	1247.479	151	8.261	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

Table 17

Cell Means and Summary of Analysis of Variance for Net Attribution to Personal Sources: Median Split of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	103.00 (10)[a]	99.14 (7)	104.50 (4)	99.00 (5)
	Lo Trust	104.88 (8)	101.60 (10)	102.29 (7)	102.38 (8)
Other Empathy	Hi Trust	105.67 (9)	99.91 (11)	99.00 (6)	99.00 (5)
	Lo Trust	104.20 (5)	100.33 (6)	102.00 (7)	98.63 (8)
Other No Empathy	Hi Trust	105.40 (5)	103.83 (12)	107.00 (6)	104.29 (7)
	Lo Trust	108.29 (7)	104.17 (6)	103.70 (10)	105.00 (6)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	52.300	1	52.300	1.666
Self-Other Attribution (B)	497.260	2	248.630	7.918*
Performance (C)	299.470	1	299.470	9.537*
Trust (D)	16.702	1	16.702	0.532
A X B	61.515	2	30.757	0.980
A X C	42.123	1	42.123	1.342
A X D	7.921	1	7.921	0.252
B X C	18.167	2	9.083	0.289
B X D	11.188	2	5.594	0.178
C X D	10.628	1	10.628	0.338
A X B X C	8.689	2	4.344	0.138
A X B X D	40.311	2	20.156	0.642
A X C X D	11.183	1	11.183	0.356
B X C X D	25.145	2	12.573	0.400
A X B X C X D	69.697	2	34.849	1.110
Experimental Error	4741.285	151	31.399	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

*p < .01

Table 18

Cell Means and Summary of Analysis of Variance for Net Attribution to Stable Sources: Median Split of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	105.20 (10)[a]	102.00 (7)	103.50 (4)	102.20 (5)
	Lo Trust	106.38 (8)	105.80 (10)	109.43 (7)	102.63 (8)
Other Empathy	Hi Trust	101.00 (9)	104.45 (11)	99.00 (6)	104.60 (5)
	Lo Trust	107.00 (5)	103.33 (6)	104.86 (7)	104.13 (8)
Other No Empathy	Hi Trust	99.00 (5)	104.67 (12)	103.67 (6)	106.00 (7)
	Lo Trust	104.86 (7)	106.17 (6)	100.50 (10)	104.33 (6)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	7.076	1	7.076	0.165
Self-Other Attribution (B)	39.460	2	19.730	0.459
Performance (C)	9.850	1	9.850	0.230
Trust (D)	163.422	1	163.422	3.808
A X B	3.836	2	1.918	0.045
A X C	0.001	1	0.001	0.000
A X D	29.867	1	29.867	0.696
B X C	273.045	2	136.522	3.181*
B X D	38.934	2	19.467	0.454
C X D	103.492	1	103.492	2.412
A X B X C	38.109	2	19.055	0.444
A X B X D	97.251	2	48.625	1.133
A X C X D	0.618	1	0.618	0.014
B X C X D	62.987	2	31.493	0.734
A X B X C X D	84.547	2	42.273	0.985
Experimental Error	6497.746	151	42.912	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

* $p < .05$

Table 19

Cell Means and Summary of Analysis of Variance for Attribution in the Exam Situation: Median Split of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	1.00 (10)[a]	1.29 (7)	1.00 (4)	1.20 (5)
	Lo Trust	1.13 (8)	1.10 (10)	1.29 (7)	1.13 (8)
Other Empathy	Hi Trust	1.00 (9)	1.00 (11)	1.17 (6)	1.00 (5)
	Lo Trust	1.00 (5)	1.17 (6)	1.00 (7)	1.00 (8)
Other No Empathy	Hi Trust	1.00 (5)	1.00 (12)	1.00 (6)	1.00 (7)
	Lo Trust	1.00 (7)	1.00 (6)	1.00 (10)	1.00 (6)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.003	1	0.003	0.053
Self-Other Attribution (B)	0.559	2	0.280	5.280*
Performance (C)	0.025	1	0.025	0.478
Trust (D)	0.006	1	0.006	0.119
A X B	0.006	2	0.003	0.053
A X C	0.086	1	0.086	1.633
A X D	0.001	1	0.001	0.020
B X C	0.051	2	0.025	0.478
B X D	0.013	2	0.006	0.119
C X D	0.032	1	0.032	0.607
A X B X C	0.049	2	0.024	0.458
A X B X D	0.155	2	0.077	1.461
A X C X D	0.001	1	0.001	0.013
B X C X D	0.442	2	0.221	4.170*
A X B X C X D	0.001	2	0.001	0.013
Experimental Error	7.997	151	0.053	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

* $p < .05$

Table 20

Cell Means and Summary of Analysis of Variance for Attribution in the Game Situation: Median Split of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	1.10 (10)[a]	1.14 (7)	1.50 (4)	1.20 (5)
	Lo Trust	1.00 (8)	1.60 (10)	1.57 (7)	1.13 (8)
Other Empathy	Hi Trust	1.22 (9)	1.36 (11)	1.33 (6)	1.40 (5)
	Lo Trust	1.20 (5)	1.00 (6)	1.00 (7)	1.25 (8)
Other No Empathy	Hi Trust	1.00 (5)	1.25 (12)	1.17 (6)	1.33 (6)
	Lo Trust	1.00 (7)	1.33 (6)	1.00 (10)	1.00 (6)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.124	1	0.124	0.788
Self-Other Attribution (B)	0.566	2	0.283	1.791
Performance (C)	0.228	1	0.228	1.445
Trust (D)	0.243	1	0.243	1.536
A X B	0.171	2	0.085	0.540
A X C	0.571	1	0.571	3.616
A X D	0.303	1	0.303	1.916
B X C	0.307	2	0.154	0.973
B X D	0.640	2	0.320	2.026
C X D	0.008	1	0.008	0.051
A X B X C	1.308	2	0.654	4.140*
A X B X D	0.099	2	0.050	3.135*
A X C X D	0.051	1	0.051	0.325
B X C X D	0.160	2	0.080	0.506
A X B X C X D	0.646	2	0.323	2.045
Experimental Error	23.704	150	0.158	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

* $p < .05$

APPENDIX I

Cell Means and Summary of Analyses of Variance: Upper and Lower Thirds of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Table 21

Cell Means and Summary of Analysis of Variance for Attribution to Ability: Upper and Lower Thirds of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	5.00 (4)[a]	3.40 (5)	6.00 (3)	5.50 (4)
	Lo Trust	7.17 (6)	4.33 (6)	7.40 (5)	5.83 (6)
Other Empathy	Hi Trust	6.50 (4)	5.83 (6)	5.00 (4)	3.00 (4)
	Lo Trust	7.50 (4)	5.33 (3)	5.75 (4)	4.17 (6)
Other No Empathy	Hi Trust	9.00 (2)	5.83 (6)	8.80 (5)	7.00 (3)
	Lo Trust	7.67 (3)	7.67 (3)	7.67 (9)	7.60 (5)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.395	1	0.395	0.046
Self-Other Attribution (B)	104.222	2	52.111	6.045**
Performance (C)	55.287	1	55.287	6.414*
Trust (D)	8.937	1	8.937	1.037
A X B	39.106	2	19.553	2.268
A X C	1.460	1	1.460	0.169
A X D	0.166	1	0.166	0.019
B X C	0.699	2	0.349	0.041
B X D	6.096	2	3.048	0.353
C X D	0.395	1	0.395	0.046
A X B X C	2.583	2	1.292	0.150
A X B X D	2.378	2	1.189	0.138
A X C X D	0.073	1	0.073	0.008
B X C X D	15.292	2	7.646	0.887
A X B X C X D	2.890	2	1.445	0.168
Experimental Error	741.319	86	8.620	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

* $p < .05$

** $p < .01$

Table 22

Cell Means and Summary of Analysis of Variance for Attribution to Effort: Upper and Lower Thirds of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	7.25 (4)[a]	3.40 (5)	6.33 (3)	3.25 (4)
	Lo Trust	6.67 (6)	4.00 (6)	2.80 (5)	4.33 (6)
Other Empathy	Hi Trust	8.00 (4)	2.50 (6)	7.00 (4)	2.25 (4)
	Lo Trust	5.25 (4)	5.00 (3)	4.00 (4)	3.83 (6)
Other No Empathy	Hi Trust	6.50 (2)	5.83 (6)	7.40 (5)	6.67 (3)
	Lo Trust	8.33 (3)	7.67 (3)	7.33 (9)	4.60 (5)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	19.280	1	19.280	2.256
Self-Other Attribution (B)	92.313	2	46.156	5.401*
Performance (C)	95.031	1	95.031	11.120*
Trust (D)	1.130	1	1.130	0.132
A X B	1.336	2	0.668	0.078
A X C	2.307	1	2.307	0.270
A X D	15.270	1	15.270	1.787
B X C	8.897	2	4.449	0.521
B X D	4.558	2	2.279	0.267
C X D	31.893	1	31.893	3.732
A X B X C	13.091	2	6.546	0.766
A X B X D	5.880	2	2.940	0.344
A X C X D	0.101	1	0.101	0.012
B X C X D	37.258	2	18.629	2.180
A X B X C X D	8.255	2	4.128	0.483
Experimental Error	734.945	86	8.546	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

*p < .01

Table 23

Cell Means and Summary of Analysis of Variance for Attribution to Task Difficulty: Upper and Lower Thirds of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	3.75 (4)[a]	4.80 (5)	5.33 (3)	5.25 (4)
	Lo Trust	7.00 (6)	6.00 (6)	8.60 (5)	6.67 (6)
Other Empathy	Hi Trust	5.75 (4)	5.83 (6)	6.75 (4)	4.50 (4)
	Lo Trust	6.25 (4)	5.00 (3)	7.75 (4)	5.33 (6)
Other No Empathy	Hi Trust	4.00 (2)	7.17 (6)	4.80 (5)	5.33 (3)
	Lo Trust	7.67 (3)	9.33 (3)	6.55 (9)	4.60 (5)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.199	1	0.199	0.023
Self-Other Attribution (B)	1.633	2	0.817	0.094
Performance (C)	3.305	1	3.305	0.382
Trust (D)	52.483	1	52.483	6.064*
A X B	34.828	2	17.414	2.012
A X C	23.983	1	23.983	2.771
A X D	0.998	1	0.998	0.115
B X C	22.192	2	11.096	1.282
B X D	15.810	2	7.905	0.913
C X D	15.126	1	15.126	1.748
A X B X C	4.666	2	2.333	0.270
A X B X D	13.363	2	6.681	0.772
A X C X D	0.025	1	0.025	0.003
B X C X D	2.053	2	1.026	0.119
A X B X C X D	1.200	2	0.600	0.069
Experimental Error	744.287	86	8.654	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

* $p < .05$

Table 24

Cell Means and Summary of Analysis of Variance for Attribution to Luck: Upper and Lower Thirds of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	4.25 (4)	2.60 (5)	1.67 (3)	2.50 (4)
	Lo Trust	1.33 (6)	1.83 (6)	1.20 (5)	1.83 (6)
Other Empathy	Hi Trust	4.50 (4)	3.00 (6)	6.25 (4)	3.00 (4)
	Lo Trust	1.00 (4)	1.67 (3)	2.50 (4)	3.50 (6)
Other No Empathy	Hi Trust	4.50 (2)	1.83 (6)	3.80 (5)	1.00 (3)
	Lo Trust	3.33 (3)	6.67 (3)	4.78 (9)	3.00 (5)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	9.681	1	9.681	1.337
Self-Other Attribution (B)	17.985	2	8.992	1.242
Performance (C)	16.071	1	16.071	2.219
Trust (D)	39.935	1	39.935	5.514*
A X B	21.864	2	10.932	1.510
A X C	0.187	1	0.187	0.026
A X D	26.573	1	26.573	3.669
B X C	13.462	2	6.731	0.929
B X D	8.500	2	4.250	0.587
C X D	26.337	1	26.337	3.637
A X B X C	6.964	2	3.482	0.481
A X B X D	13.622	2	6.811	0.941
A X C X D	0.865	1	0.865	0.119
B X C X D	5.144	2	2.572	0.355
A X B X C X D	6.226	2	3.113	0.430
Experimental Error	622.800	86	7.242	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

* $p < .05$

Table 25

Cell Means and Summary of Analysis of Variance for Net Attribution to Personal Sources: Upper and Lower Thirds of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	104.25 (4)[a]	99.40 (5)	105.33 (3)	101.00 (4)
	Lo Trust	105.50 (6)	100.50 (6)	100.40 (5)	101.67 (6)
Other Empathy	Hi Trust	104.25 (4)	99.50 (6)	99.00 (4)	97.75 (4)
	Lo Trust	105.50 (4)	103.67 (3)	99.50 (4)	99.17 (6)
Other No Empathy	Hi Trust	107.00 (2)	102.67 (6)	107.60 (5)	107.33 (3)
	Lo Trust	108.00 (3)	105.33 (3)	103.67 (9)	104.60 (5)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	59.045	1	59.045	1.875
Self-Other Attribution (B)	398.216	2	199.108	6.324**
Performance (C)	128.981	1	128.981	4.097*
Trust (D)	1.002	1	1.002	0.032
A X B	99.430	2	49.715	1.579
A X C	64.914	1	64.914	2.062
A X D	71.760	1	71.760	2.279
B X C	11.886	2	5.943	0.189
B X D	33.206	2	16.603	0.527
C X D	25.331	1	25.331	0.805
A X B X C	1.899	2	0.950	0.030
A X B X D	12.049	2	6.025	0.191
A X C X D	1.849	1	1.849	0.059
B X C X D	1.753	2	0.876	0.028
A X B X C X D	17.342	2	8.671	0.275
Experimental Error	2707.591	86	31.484	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

* $p < .05$

** $p < .01$

Table 26

Cell Means and Summary of Analysis of Variance for Net Attribution to Stable Sources: Upper and Lower Thirds of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	97.25 (4)[a]	102.20 (5)	103.33 (3)	105.00 (4)
	Lo Trust	106.17 (6)	104.50 (6)	112.00 (5)	106.33 (6)
Other Empathy	Hi Trust	99.75 (4)	106.17 (6)	98.50 (4)	102.25 (4)
	Lo Trust	107.50 (4)	103.67 (3)	107.00 (4)	102.17 (6)
Other No Empathy	Hi Trust	102.00 (2)	105.33 (6)	102.40 (5)	104.67 (3)
	Lo Trust	106.67 (3)	108.67 (3)	102.11 (9)	104.60 (5)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.042	1	0.042	0.001
Self-Other Attribution (B)	31.749	2	15.874	0.389
Performance (C)	20.283	1	20.283	0.497
Trust (D)	310.342	1	310.342	7.609**
A X B	208.070	2	104.035	2.551
A X C	22.803	1	22.803	0.559
A X D	7.042	1	7.042	0.173
B X C	33.536	2	16.768	0.411
B X D	47.613	2	23.807	0.584
C X D	197.130	1	197.130	4.833*
A X B X C	11.597	2	5.799	0.142
A X B X D	34.822	2	17.441	0.427
A X C X D	1.078	1	1.078	0.026
B X C X D	86.271	2	43.136	1.058
A X B X C X D	1.862	2	0.931	0.023
Experimental Error	3507.806	86	40.788	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

* $p < .05$

** $p < .01$

Table 27

Cell Means and Summary of Analysis of Variance for Attribution in the Exam Situation: Upper and Lower Thirds of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	1.00 (5)[a]	1.20 (5)	1.00 (3)	1.25 (4)
	Lo Trust	1.17 (6)	1.17 (6)	1.40 (5)	1.00 (6)
Other Empathy	Hi Trust	1.00 (4)	1.00 (6)	1.25 (4)	1.00 (4)
	Lo Trust	1.00 (4)	1.33 (3)	1.00 (4)	1.00 (6)
Other No Empathy	Hi Trust	1.00 (2)	1.00 (6)	1.00 (5)	1.00 (3)
	Lo Trust	1.00 (3)	1.00 (3)	1.00 (9)	1.00 (5)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.001	1	0.001	0.003
Self-Other Attribution (B)	0.364	2	0.182	2.671
Performance (C)	0.003	1	0.003	0.045
Trust (D)	0.023	1	0.023	0.342
A X B	0.010	2	0.005	0.077
A X C	0.151	1	0.151	2.215
A X D	0.056	1	0.056	0.817
B X C	0.002	2	0.001	0.013
B X D	0.022	2	0.011	0.162
C X D	0.012	1	0.012	0.181
A X B X C	0.090	2	0.044	0.658
A X B X D	0.121	2	0.061	0.891
A X C X D	0.049	1	0.049	0.723
B X C X D	0.540	2	0.270	3.963*
A X B X C X D	0.060	2	0.030	0.437
Experimental Error	5.921	87	0.068	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

* $p < .05$

Table 28

Cell Means and Summary of Analysis of Variance for Attribution in the Game Situation: Upper and Lower Thirds of Rotter I-E Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	1.00 (5)[a]	1.20 (5)	1.67 (3)	1.00 (4)
	Lo Trust	1.00 (6)	1.67 (6)	1.60 (5)	1.17 (6)
Other Empathy	Hi Trust	1.25 (4)	1.17 (6)	1.25 (4)	1.50 (4)
	Lo Trust	1.25 (4)	1.00 (3)	1.00 (4)	1.33 (6)
Other No Empathy	Hi Trust	1.00 (2)	1.50 (6)	1.20 (5)	1.00 (2)
	Lo Trust	1.00 (3)	1.00 (3)	1.00 (9)	1.00 (5)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.079	1	0.079	0.513
Self-Other Attribution (B)	0.667	2	0.334	2.179
Performance (C)	0.017	1	0.017	0.110
Trust (D)	0.086	1	0.086	0.565
A X B	0.217	2	0.108	0.708
A X C	0.515	1	0.515	3.367
A X D	0.017	1	0.017	0.110
B X C	0.088	2	0.044	0.286
B X D	0.495	2	0.247	1.616
C X D	0.017	1	0.017	0.110
A X B X C	2.108	2	1.054	6.888*
A X B X D	0.128	2	0.064	0.418
A X C X D	0.086	1	0.086	0.565
B X C X D	0.279	2	0.140	0.913
A X B X C X D	0.220	2	0.110	0.718
Experimental Error	13.160	86	0.153	

[a] Ns for each cell are shown in parentheses

[b] Rotter I-E Scale

*$p < .01$

APPENDIX J

Cell Means and Summary of Analyses of Variance:

Median Split of Nowicki-Strickland Locus of Control Scale Scores

and

Median Split of Interpersonal Trust Scores

Table 29

Cell Means and Summary of Analysis of Variance for Attribution to Ability: Median Split of Nowicki-Strickland Locus of Control Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	7.33 (3)[a]	4.67 (6)	6.09 (11)	3.83 (6)
	Lo Trust	7.18 (11)	4.11 (6)	8.25 (4)	7.11 (9)
Other Empathy	Hi Trust	6.00 (8)	4.70 (10)	6.14 (7)	7.00 (6)
	Lo Trust	5.40 (5)	4.78 (9)	6.86 (7)	6.20 (5)
Other No Empathy	Hi Trust	8.20 (5)	6.30 (10)	8.17 (6)	7.22 (9)
	Lo Trust	8.33 (6)	7.00 (3)	7.36 (11)	7.11 (9)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	14.238	1	14.238	1.884
Self-Other Attribution (B)	75.250	2	37.625	4.977*
Performance (C)	61.671	1	61.671	8.159*
Trust (D)	4.310	1	4.310	0.570
A X B	11.333	2	5.667	0.750
A X C	11.149	1	11.149	1.475
A X D	6.165	1	6.165	0.816
B X C	22.272	2	11.136	1.473
B X D	13.701	2	6.850	0.906
C X D	0.341	1	0.341	0.045
A X B X C	0.039	2	0.020	0.003
A X B X D	26.292	2	13.146	1.739
A X C X D	0.078	1	0.078	0.010
B X C X D	1.872	2	0.936	0.124
A X B X C X D	5.573	2	2.787	0.369
Experimental Error	1141.410	151	7.559	

[a] Ns for each cell are shown in parentheses

[b] Nowicki-Strickland Locus of Control Scale

*$p < .01$

Table 30

Cell Means and Summary of Analysis of Variance for Attribution to Effort: Median Split of Nowicki-Strickland Locus of Control Scale Scores and Median Split of Interpersonal Trust Scores

		Cell Means			
		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	7.00 (3)[a]	3.50 (6)	4.27 (11)	4.17 (6)
	Lo Trust	5.00 (11)	4.56 (9)	4.75 (4)	5.00 (9)
Other Empathy	Hi Trust	8.62 (8)	2.90 (10)	5.71 (7)	3.00 (6)
	Lo Trust	4.00 (5)	3.33 (9)	5.86 (7)	2.40 (5)
Other No Empathy	Hi Trust	7.20 (5)	6.60 (10)	6.83 (6)	5.00 (9)
	Lo Trust	9.17 (6)	8.33 (3)	6.55 (11)	5.89 (9)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	30.701	1	30.701	3.633
Self-Other Attribution (B)	183.557	2	91.778	10.861*
Performance (C)	108.619	1	108.619	12.853*
Trust (D)	0.001	1	0.001	0.001
A X B	14.031	2	7.016	0.830
A X C	2.791	1	2.791	0.330
A X D	2.205	1	2.205	0.261
B X C	39.970	2	19.985	2.365
B X D	31.864	2	15.932	1.885
C X D	19.841	1	19.841	2.348
A X B X C	11.365	2	5.682	0.672
A X B X D	20.467	2	10.234	1.211
A X C X D	13.269	1	13.269	1.570
B X C X D	4.824	2	2.412	0.285
A X B X C X D	20.722	2	10.361	1.226
Experimental Error	1276.039	151	8.451	

[a] Ns for each cell are shown in parentheses

[b] Nowicki-Strickland Locus of Control Scale

*p < .01

Table 31

Cell Means and Summary of Analysis of Variance for Attribution to Task Difficulty: Median Split of Nowicki-Strickland Locus of Control Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	5.67 (3)[a]	5.00 (6)	5.45 (11)	5.66 (6)
	Lo Trust	7.82 (11)	5.55 (9)	5.00 (4)	6.44 (9)
Other Empathy	Hi Trust	5.63 (8)	5.79 (10)	6.14 (7)	4.67 (6)
	Lo Trust	6.79 (5)	6.11 (9)	6.28 (7)	3.60 (5)
Other No Empathy	Hi Trust	5.00 (5)	7.00 (10)	4.33 (6)	5.77 (9)
	Lo Trust	6.33 (6)	8.00 (3)	5.55 (11)	6.44 (9)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	23.063	1	23.063	2.481
Self-Other Attribution (B)	4.593	2	2.296	0.247
Performance (C)	0.001	1	0.001	0.001
Trust (D)	16.076	1	16.076	1.730
A X B	3.338	2	1.669	0.180
A X C	0.039	1	0.039	0.004
A X D	7.270	1	7.270	0.782
B X C	47.192	2	23.596	2.539
B X D	5.492	2	2.746	0.295
C X D	2.902	1	2.902	0.312
A X B X C	28.535	2	14.267	1.535
A X B X D	1.992	2	0.996	0.107
A X C X D	1.361	1	1.361	0.146
B X C X D	1.218	2	0.609	0.066
A X B X C X D	5.103	2	2.552	0.275
Experimental Error	1403.561	151	9.295	

[a] Ns for each cell are shown in parentheses

[b] Nowicki-Strickland Locus of Control Scale

Table 32

Cell Means and Summary of Analysis of Variance for Attribution to Luck: Median Split of Nowicki-Strickland Locus of Control Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	2.67 (3)[a]	2.16 (6)	2.18 (11)	5.17 (6)
	Lo Trust	1.27 (11)	1.77 (9)	2.75 (4)	3.11 (9)
Other Empathy	Hi Trust	4.37 (8)	3.39 (10)	4.57 (7)	3.67 (6)
	Lo Trust	2.79 (5)	3.88 (9)	1.29 (7)	3.40 (5)
Other No Empathy	Hi Trust	5.39 (5)	1.30 (10)	3.33 (6)	3.11 (9)
	Lo Trust	1.33 (6)	2.33 (3)	5.09 (11)	2.11 (9)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	13.175	1	13.175	1.586
Self-Other Attribution (B)	15.711	2	7.856	0.945
Performance (C)	0.699	1	0.699	0.084
Trust (D)	27.375	1	27.375	3.294
A X B	19.677	2	9.839	1.184
A X C	4.959	1	4.959	0.597
A X D	0.693	1	0.693	0.083
B X C	41.024	2	20.512	2.468
B X D	2.228	2	1.114	0.134
C X D	8.899	1	8.899	1.071
A X B X C	4.838	2	2.419	0.291
A X B X D	15.571	2	7.785	0.937
A X C X D	29.271	1	29.271	3.522
B X C X D	17.977	2	8.988	1.082
A X B X C X D	30.762	2	15.381	1.851
Experimental Error	1254.745	151	8.310	

[a] Ns for each cell are shown in parentheses

[b] Nowicki-Strickland Locus of Control Scale

Table 33

Cell Means and Summary of Analysis of Variance for Net Attribution to Personal Sources: Median Split of Nowicki-Strickland Locus of Control Scale Scores and Median Split of Interpersonal Trust Scores

		Cell Means			
		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	106.00 (3)[a]	101.00 (6)	102.73 (11)	97.17 (6)
	Lo Trust	103.09 (11)	101.33 (9)	105.25 (4)	102.56 (9)
Other Empathy	Hi Trust	104.63 (8)	98.40 (10)	101.14 (7)	101.67 (6)
	Lo Trust	99.80 (5)	98.11 (9)	105.14 (7)	101.60 (5)
Other No Empathy	Hi Trust	105.00 (5)	104.59 (10)	107.33 (6)	103.33 (9)
	Lo Trust	109.83 (6)	105.00 (3)	103.27 (11)	104.44 (9)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.354	1	0.354	0.012
Self-Other Attribution (B)	443.677	2	221.838	7.253*
Performance (C)	305.223	1	305.223	9.979*
Trust (D)	10.943	1	10.943	0.358
A X B	98.387	2	49.193	1.608
A X C	8.886	1	8.886	0.291
A X D	34.010	1	34.010	1.112
B X C	19.321	2	9.661	0.316
B X D	16.833	2	8.417	0.275
C X D	14.128	1	14.128	0.462
A X B X C	16.440	2	8.220	0.269
A X B X D	170.897	2	85.449	2.794
A X C X D	0.104	1	0.104	0.003
B X C X D	16.022	2	8.011	0.262
A X B X C X D	131.652	2	65.826	2.152
Experimental Error	4618.348	151	30.585	

[a] Ns for each cell are shown in parentheses

[b] Nowicki-Strickland Locus of Control Scale

*$p < .01$

Table 34

Cell Means and Summary of Analysis of Variance for Net Attribution to Stable Sources: Median Split of Nowicki-Strickland Locus of Control Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	103.33 (3)[a]	104.00 (6)	105.09 (11)	100.17 (6)
	Lo Trust	108.55 (11)	103.33 (9)	105.75 (4)	105.44 (9)
Other Empathy	Hi Trust	98.63 (8)	104.20 (10)	102.00 (7)	105.00 (6)
	Lo Trust	105.40 (5)	103.67 (9)	106.00 (7)	104.00 (5)
Other No Empathy	Hi Trust	100.60 (5)	105.40 (10)	102.33 (6)	104.89 (9)
	Lo Trust	104.17 (6)	104.33 (3)	101.27 (11)	105.55 (9)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.951	1	0.951	0.021
Self-Other Attribution (B)	25.491	2	12.746	0.286
Performance (C)	12.462	1	12.462	0.279
Trust (D)	125.772	1	125.772	2.819
A X B	25.901	2	12.951	0.290
A X C	0.722	1	0.722	0.016
A X D	5.940	1	5.940	0.133
B X C	192.097	2	96.048	2.152
B X D	32.362	2	16.181	0.363
C X D	71.631	1	71.631	1.605
A X B X C	8.816	2	4.408	0.099
A X B X D	10.544	2	5.272	0.118
A X C X D	96.952	1	96.952	2.173
B X C X D	56.262	2	28.131	0.630
A X B X C X D	26.550	2	13.275	0.297
Experimental Error	6737.926	151	44.622	

[a] Ns for each cell are shown in parentheses

[b] Nowicki-Strickland Locus of Control Scale

Table 35

Cell Means and Summary of Analysis of Variance for Attribution in the Exam Situation: Median Split of Nowicki-Strickland Locus of Control Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	1.00 (3)[a]	1.17 (6)	1.00 (11)	1.33 (6)
	Lo Trust	1.18 (11)	1.22 (9)	1.25 (4)	1.00 (9)
Other Empathy	Hi Trust	1.00 (8)	1.00 (10)	1.14 (7)	1.00 (6)
	Lo Trust	1.00 (5)	1.11 (9)	1.00 (7)	1.00 (5)
Other No Empathy	Hi Trust	1.00 (5)	1.00 (10)	1.00 (6)	1.00 (9)
	Lo Trust	1.00 (6)	1.00 (3)	1.00 (11)	1.00 (9)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.001	1	0.001	0.010
Self-Other Attribution (B)	0.582	2	0.291	5.533**
Performance (C)	0.018	1	0.018	0.336
Trust (D)	0.004	1	0.004	0.075
A X B	0.001	2	0.001	0.004
A X C	0.038	1	0.038	0.716
A X D	0.087	1	0.087	1.656
B X C	0.050	2	0.025	0.474
B X D	0.016	2	0.008	0.149
C X D	0.055	1	0.055	1.041
A X B X C	0.026	2	0.013	0.243
A X B X D	0.045	2	0.023	0.431
A X C X D	0.048	1	0.048	0.907
B X C X D	0.395	2	0.197	3.753*
A X B X C X D	0.118	2	0.059	1.126
Experimental Error	7.946	151	0.053	

[a] Ns for each cell are shown in parentheses

[b] Nowicki-Strickland Locus of Control Scale

* $p < .05$

** $p < .01$

Table 36

Cell Means and Summary of Analysis of Variance for Attribution in the Game Situation: Median Split of Nowicki-Strickland Locus of Control Scale Scores and Median Split of Interpersonal Trust Scores

Cell Means

		Internals		Externals	
		Pass	Fail	Pass	Fail
Self	Hi Trust	1.00 (3)[a]	1.00 (6)	1.27 (11)	1.33 (6)
	Lo Trust	1.18 (11)	1.44 (9)	1.50 (4)	1.33 (9)
Other Empathy	Hi Trust	1.38 (8)	1.40 (10)	1.14 (7)	1.33 (6)
	Lo Trust	1.00 (5)	1.11 (9)	1.14 (7)	1.20 (5)
Other No Empathy	Hi Trust	1.00 (5)	1.30 (10)	1.17 (6)	1.25 (8)
	Lo Trust	1.00 (6)	1.00 (3)	1.00 (11)	1.22 (9)

Summary of Analysis of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.310	1	0.310	1.829
Self-Other Attribution (B)	0.522	2	0.261	1.544
Performance (C)	0.345	1	0.345	2.040
Trust (D)	0.050	1	0.050	0.298
A X B	0.306	2	0.153	0.905
A X C	0.017	1	0.017	0.098
A X D	0.015	1	0.015	0.087
B X C	0.080	2	0.040	0.235
B X D	1.218	2	0.609	3.600*
C X D	0.008	1	0.008	0.046
A X B X C	0.100	2	0.050	0.297
A X B X D	0.342	2	0.171	1.009
A X C X D	0.019	1	0.019	0.114
B X C X D	0.015	2	0.008	0.045
A X B X C X D	0.360	2	0.180	1.064
Experimental Error	25.383	150	0.169	

[a] Ns for each cell are shown in parentheses

[b] Nowicki-Strickland Locus of Control Scale

* $p < .05$

APPENDIX K

Cell Means and Summary of Analyses of Variance:

Upper and Lower Thirds of Nowicki-Strickland

Locus of Control Scale Scores

Table 37

Cell Means and Summary of Analysis of Variance for Attribution to Ability: Upper and Lower Thirds of Nowicki-Strickland Locus of Control Scale Scores

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	7.50 (8) [a]	3.45 (11)	10.80 (10)	10.64 (14)
Other-Empathy	5.89 (9)	5.46 (13)	12.00 (12)	8.63 (8)
Other-No Empathy	7.89 (9)	7.13 (8)	14.78 (9)	13.33 (15)

Summary of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	18.967	1	18.967	2.823
Self-Other Attribution (B)	67.557	2	33.779	5.027*
Performance (C)	30.469	1	30.469	4.535**
A X B	3.586	2	1.793	0.267
A X C	16.407	1	16.407	2.442
B X C	42.072	2	21.036	3.131
A X B X C	9.310	2	4.655	0.693
Experimental Error	765.998	114	6.719	

[a] Ns for each cell are shown in parentheses.

[b] Nowicki-Strickland Locus of Control Scale

* $p < .05$

** $p < .01$

Table 38

Cell Means and Summary of Analysis of Variance for Attribution to Effort: Upper and Lower Thirds of Nowicki-Strickland Locus of Control Scale Scores

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	7.00 (8)[a]	4.64 (11)	3.80 (10)	4.79 (14)
Other-Empathy	7.80 (9)	2.92 (13)	5.67 (12)	1.38 (8)
Other-No Empathy	7.89 (9)	8.25 (8)	6.67 (9)	5.80 (15)

Summary of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	93.897	1	93.897	13.550*
Self-Other Attribution (B)	157.486	2	78.743	11.364*
Performance (C)	105.719	1	105.719	15.256*
A X B	0.936	2	0.468	0.068
A X C	7.055	1	7.055	1.018
B X C	119.544	2	59.772	8.626*
A X B X C	26.367	2	13.183	1.903
Experimental Error	789.958	114	6.929	

[a]Ns for each cell are shown in parentheses.

[b]Nowicki-Strickland Locus of Control Scale

*$p < .01$

Table 39

Cell Means and Summary of Analysi of Variance for Attribution to Task Difficulty: Upper and Lower Thirds of Nowicki-Strickland Locus of Control Scale Scores

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	6.38 (8)[a]	5.09 (11)	5.50 (10)	6.14 (14)
Other-Empathy	5.89 (9)	6.46 (13)	6.33 (12)	5.13 (8)
Other-No Empathy	5.78 (9)	7.75 (8)	4.56 (9)	6.67 (15)

Summary of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	7.619	1	7.619	0.846
Self-Other Attribution (B)	3.398	2	1.699	0.188
Performance (C)	6.576	1	6.576	0.730
A X B	7.769	2	3.884	0.431
A X C	0.068	1	0.068	0.008
B X C	37.234	2	18.617	2.067
A X B X C	17.228	2	8.614	0.956
Experimental Error	1026.941	114	9.008	

[a]Ns for each cell are shown in parentheses.

[b]Nowicki-Strickland Locus of Control Scale

Table 40

Cell Means and Summary of Analysis of Variance for Attribution to Luck: Upper and Lower Thirds of Nowicki-Strickland Locus of Control Scale Scores

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	1.75 (8)[a]	1.73 (11)	3.60 (10)	4.07 (14)
Other-Empathy	4.44 (9)	3.62 (13)	3.25 (12)	4.50 (8)
Other-No Empathy	3.33 (9)	1.13 (8)	3.89 (9)	2.53 (15)

Summary of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	28.559	1	28.559	3.328
Self-Other Attribution (B)	38.490	2	19.245	2.182
Performance (C)	6.061	1	6.061	0.687
A X B	25.409	2	12.704	1.440
A X C	9.801	1	9.801	1.111
B X C	26.704	2	13.352	1.514
A X B X C	3.461	2	1.730	0.196
Experimental Error	1005.606	114	8.821	

[a]Ns for each cell are shown in parentheses.

[b]Nowicki-Strickland Locus of Control Scale

Table 41

Cell Means and Summary of Analysis of Variance for Net Attribution to Personal Sources: Upper and Lower Thirds of Nowicki-Strickland Locus of Control Scale Scores

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	106.39 (8)[a]	101.27 (11)	101.70 (10)	100.43 (14)
Other-Empathy	103.56 (9)	98.31 (13)	102.42 (12)	99.00 (8)
Other-No Empathy	106.67 (9)	106.50 (8)	106.33 (9)	104.13 (15)

Summary of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	62.705	1	62.705	2.063
Self-Other Attribution (B)	541.487	2	270.743	8.909*
Performance (C)	252.949	1	252.949	8.324*
A X B	32.362	2	16.181	0.532
A X C	10.995	1	10.995	0.362
B X C	50.909	2	25.454	0.838
A X B X C	44.524	2	22.262	0.733
Experimental Error	3464.394	114	30.389	

[a]Ns for each cell are shown in parentheses.

[b]Nowicki-Strickland Locus of Control Scale

*$p < .01$

Table 42

Cell Means and Summary of Analysis of Variance for Net Attribution to Stable Sources: Upper and Lower Thirds of Nowicki-Strickland Locus of Control Scale Scores

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	105.13 (8) [a]	102.18 (11)	105.10 (10)	103.14 (14)
Other-Empathy	99.33 (9)	105.38 (13)	103.75 (12)	106.50 (8)
Other-No Empathy	102.44 (9)	105.50 (8)	102.11 (9)	105.87 (15)

Summary of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	35.294	1	35.294	0.793
Self-Other Attribution (B)	1.159	2	0.579	0.013
Performance (C)	95.816	1	95.816	2.154
A X B	43.566	2	21.783	0.490
A X C	2.179	1	2.179	0.049
B X C	274.594	2	137.297	3.086
A X B X C	28.785	2	14.393	0.324
Experimental Error	5071.414	114	44.486	

[a] Ns for each cell are shown in parentheses.

[b] Nowicki-Strickland Locus of Control Scale

Table 43

Cell Means and Summary of Analysis of Variance for Attribution in the Exam Situation: Upper and Lower Thirds of Nowicki-Strickland Locus of Control Scale Scores

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	1.13 (8)[a]	1.27 (11)	1.10 (10)	1.14 (14)
Other-Empathy	1.00 (9)	1.00 (13)	1.08 (12)	1.00 (8)
Other-No Empathy	1.00 (9)	1.00 (8)	1.00 (9)	1.00 (15)

Summary of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.004	1	0.004	0.073
Self-Other Attribution (B)	0.608	2	0.304	5.207*
Performance (C)	0.010	1	0.010	0.165
A X B	0.073	2	0.037	0.627
A X C	0.030	1	0.030	0.507
B X C	0.099	2	0.049	0.846
A X B X C	0.015	2	0.008	0.132
Experimental Error	6.652	114	0.058	

[a] Ns for each cell are shown in parentheses.

[b] Nowicki-Strickland Locus of Control Scale

* $p < .05$

Table 44

Cell Means and Summary of Analysis of Variance for Attribution in the Game Situation Upper and Lower Thirds of Nowicki-Strickland Locus of Control Scale Scores

Cell Means

	Internals		Externals	
	Pass	Fail	Pass	Fail
Self	1.00 (8)[a]	1.27 (11)	1.44 (9)	1.29 (14)
Other-Empathy	1.22 (9)	1.23 (13)	1.08 (12)	1.25 (8)
Other-No Empathy	1.00 (9)	1.25 (8)	1.11 (9)	1.21 (14)

Summary of Variance

Source of Variation	SS	df	MS	F
Locus of Control (A)[b]	0.141	1	0.141	0.867
Self-Other Attribution (B)	0.226	2	0.113	0.696
Performance (C)	0.340	1	0.340	2.096
A X B	0.426	2	0.213	1.313
A X C	0.145	1	0.145	0.897
B X C	0.076	1	0.038	0.235
A X B X C	0.430	2	0.215	1.325
Experimental Error	18.173	112	0.162	

[a]Ns for each cell are shown in parentheses.

[b]Nowicki-Strickland Locus of Control Scale

APPENDIX L

Raw Data

Identification of Variable in Raw Data Matrix

Variable Number	Variable Name
1.	School Identification
2.	Grade Level
3.	Rotter I-E Scale
4.	Nowicki-Strickland Locus of Control Scale Score
5.	Rotter Interpersonal Trust Scale Score
6.	Performance Score
7.	Attribution to Task Difficulty
8.	Attribution to Effort
9.	Attribution to Luck
10.	Attribution to Ability
11.	Attribution for Performance in the Exam Situation
12.	Attribution for Performance in the Game Situation

Identification of Experimental Cell in Raw Data Matrix

Cell Identification	Cell Name
1 1 1	Internals, Self, pass
1 1 2	Internals, Self, fail
1 2 1	Internals, Other-Empathy, pass
1 2 2	Internals, Other-Empathy, fail
1 3 1	Internals, Other-No Empathy, pass
1 3 2	Internals, Other-No Empathy, fail
2 1 1	Externals, Self, pass
2 1 2	Externals, Self, fail
2 2 1	Externals, Other-Empathy, pass
2 2 2	Externals, Other-Empathy, fail
2 3 1	Externals, Other-No Empathy, pass
2 3 2	Externals, Other-No Empathy, fail

Raw Data Matrix

Cell I.D.	Subject Number	Variable Number 1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1 1 1	1.	1	11	10	17	77	8	5	1	1	6	1	2
	2.	1	11	10	13	73	8	8	5	3	8	1	1
	3.	1	11	7	6	80	6	3	8	0	7	1	1
	4.	1	11	11	18	70	9	10	1	0	8	1	1
	5.	1	12	1	12	71	8	8	5	0	2	1	1
	6.	1	12	10	4	74	8	9	3	1	5	1	1
	7.	1	11	11	14	78	9	9	1	1	10	1	1
	8.	1	12	9	9	66	6	8	5	3	7	2	1
	9.	1	12	9	12	78	6	0	7	1	7	1	1
	10.	1	12	6	0	51	8	1	0	1	9	1	1
	11.	1	11	9	16	70	8	2	7	9	1	1	1
	12.	1	11	11	8	65	10	10	5	1	5	1	1
	13.	2	11	3	4	72	8	5	10	7	10	1	1
	14.	2	11	9	9	60	7	5	10	1	7	1	1
	15.	3	11	8	10	53	8	10	5	0	5	1	1
	16.	3	11	6	10	66	8	8	5	3	5	1	1
	17.	3	11	10	11	58	9	5	5	0	7	1	1
	18.	3	11	7	4	59	6	10	5	0	10	1	1
1 1 2	19.	1	12	8	8	58	1	1	6	1	1	1	1
	20.	1	11	11	17	78	4	9	6	10	6	2	1
	21.	1	12	10	15	67	2	7	9	3	9	1	2
	22.	1	11	10	2	77	0	5	5	1	5	1	1
	23.	1	11	11	15	—	1	8	5	5	6	1	1
	24.	1	11	8	7	70	1	0	5	6	5	2	1
	25.	1	11	10	12	61	2	10	5	5	10	1	1
	26.	1	11	7	7	55	0	10	3	0	3	2	2
	27.	1	12	9	7	61	1	8	3	8	1	1	2
	28.	1	12	6	7	75	1	5	8	0	0	1	1

Raw Data Matrix

Cell I.D.	Subject Number	Variable Number											
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1 1 2	29.	1	12	9	10	71	2	5	1	5	5	1	1
	30.	1	11	7	8	67	1	10	1	0	9	1	2
	31.	2	11	9	14	54	1	6	5	1	10	1	2
	32.	2	11	10	11	61	1	4	8	4	10	1	2
	33.	3	11	8	6	64	0	1	6	1	2	1	1
	34.	3	11	10	10	65	0	10	0	0	5	1	1
	35.	3	11	8	7	86	0	10	0	0	6	1	1
	36.	3	11	6	12	69	3	4	3	2	1	1	2
1 2 1	37.	1	12	8	8	69	7	8	7	5	5	1	2
	38.	1	11	2	4	98	6	5	10	5	10	1	1
	39.	1	11	6	19	66	6	5	7	2	7	1	1
	40.	1	12	10	4	76	8	5	10	5	5	1	1
	41.	1	12	9	10	60	8	4	4	0	4	1	1
	42.	1	11	11	17	77	9	5	8	2	10	1	1
	43.	1	11	11	7	61	8	7	4	5	7	1	1
	44.	1	11	10	10	69	8	9	7	6	8	1	2
	45.	1	11	10	21	71	6	1	3	1	5	1	1
	46.	1	12	7	20	71	8	5	5	3	6	1	1
	47.	2	12	11	8	68	5	3	7	1	9	1	1
	48.	2	11	9	10	—	7	5	2	0	7	1	1
	49.	2	11	9	9	69	5	5	10	5	5	1	1
	50.	3	11	7	14	66	7	10	5	1	9	1	1
	51.	3	11	8	12	64	7	6	5	1	10	1	2
	52.	3	11	10	—	—	5	9	10	3	10	1	1
1 2 2	53.	1	11	10	12	82	2	5	7	3	5	1	1
	54.	1	12	6	12	57	4	0	10	0	0	1	1
	55.	1	11	7	7	76	3	5	1	8	3	1	1

Raw Data Matrix

Cell I.D.	Subject Number	Variable Number 1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1 2 2	56.	1	12	3	7	52	2	10	0	0	10	1	1
	57.	1	11	11	14	70	3	6	0	10	6	1	2
	58.	1	12	11	26	70	2	6	3	7	5	1	1
	59.	1	12	9	10	56	4	5	5	5	6	2	1
	60.	1	11	11	14	61	1	3	1	5	8	1	1
	61.	1	11	10	9	66	8	2	0	10	0	1	1
	62.	1	12	10	9	68	1	10	10	5	6	1	2
	63.	1	11	9	17	75	0	5	5	1	6	1	1
	64.	1	11	4	7	69	0	4	5	2	2	1	1
	65.	2	11	3	6	—	1	5	5	0	5	1	1
	66.	3	11	7	6	70	0	8	2	6	6	1	2
	67.	3	11	5	6	69	2	5	1	1	10	1	1
	68.	3	11	8	10	71	3	8	1	0	8	1	1
	69.	3	11	10	9	67	1	6	1	1	8	1	1
	70.	3	11	11	13	75	1	0	2	0	10	1	2
1 3 1	71.	1	11	11	7	53	—	9	10	0	9	1	1
	72.	1	12	10	7	67	—	0	10	2	8	1	1
	73.	1	12	6	4	85		0	5	6	10	1	1
	74.	1	11	11	19	74		6	4	6	6	1	1
	75.	1	11	10	12	58		2	3	8	8	1	1
	76.	1	11	10	6	72		2	8	5	9	1	1
	77.	1	11	8	8	73		8	8	3	8	1	1
	78.	1	11	9	12	—		2	4	2	0	1	1
	79.	1	12	11	21	64		5	3	0	9	1	1
	80.	1	11	10	12	85		2	9	6	4	1	1
	81.	2	11	9	11	58		5	10	0	10	1	1
	82.	2	11	3	7	64		8	10	1	8	1	1
	83.	3	11	8	7	54		10	5	0	5	1	1

Raw Data Matrix

Cell I.D.	Subject Number	Variable Number 1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1 3 2	84.	1	11	9	7	73		10	5	0	5	1	2
	85.	1	12	10	10	72		5	10	0	7	1	1
	86.	1	11	6	14	76		7	9	4	9	1	1
	87.	1	12	9	5	72		10	10	3	5	1	1
	88.	1	11	10	12	71		0	5	1	5	1	1
	89.	1	11	11	16	66		8	3	0	2	1	2
	90.	1	12	8	17	74		3	2	2	7	1	2
	91.	1	12	11	10	70		6	2	3	5	1	1
	92.	1	11	10	19	76		9	6	4	9	1	1
	93.	1	11	10	7	67		10	10	0	6	1	1
	94.	1	11	10	18	65		6	10	6	8	1	2
	95.	2	11	10	14	76		8	5	3	10	1	1
	96.	2	11	11	18	71		5	8	5	7	1	1
	97.	3	11	8	11	74		8	0	0	0	1	2
	98.	3	11	8	14	61		9	8	0	8	1	1
	99.	3	11	4	8	80		5	9	2	9	1	1
	100.	3	11	8	7	59		9	10	2	10	1	1
	101.	3	11	7	14	63		10	5	0	5	1	1
2 1 1	102.	1	12	18	12	55	9	9	4	0	8	2	1
	103.	1	11	13	11	67	10	10	1	5	5	1	2
	104.	1	11	12	14	70	9	2	1	4	7	1	1
	105.	1	11	14	16	73	8	8	9	5	8	1	2
	106.	1	11	15	11	64	10	10	3	0	9	1	1
	107.	1	11	13	12	75	8	5	8	0	5	1	2
	108.	1	11	13	15	—	7	8	3	5	5	2	—
	109.	1	12	14	15	61	7	5	5	1	5	1	2
	110.	2	11	18	13	77	9	3	2	0	5	1	1
	111.	2	11	12	17	61	5	6	10	0	10	1	2
	112.	3	11	12	15	40	7	0	0	0	10	1	1
	113.	3	11	13	10	67	9	9	1	0	10	2	2

Raw Data Matrix

Cell I.D.	Subject Number	Variable Number 1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
2 1 2	114.	1	11	18	15	63	1	5	10	5	6	1	1
	115.	1	12	16	16	55	2	5	0	0	6	1	1
	116.	1	11	13	19	73	4	0	3	0	3	1	1
	117.	1	11	12	16	61	1	7	5	9	1	1	1
	118.	1	11	14	19	67	1	10	5	0	10	1	1
	119.	1	11	15	17	69	0	7	6	4	5	2	1
	120.	1	12	14	8	55	3	5	5	1	1	1	1
	121.	1	12	12	16	70	2	5	5	10	1	1	2
	122.	1	11	13	16	72	3	2	2	5	7	1	1
	123.	3	11	12	9	67	3	1	9	1	5	2	1
	124.	3	11	13	14	49	0	10	5	0	10	1	2
	125.	3	11	16	16	59	2	5	1	5	2	1	1
	126.	3	11	13	10	75	3	5	2	1	7	1	1
2 2 1	127.	1	11	12	13	57	8	5	8	1	5	1	1
	128.	3	12	14	10	66	7	7	2	1	6	1	1
	129.	1	11	13	15	61	8	8	4	1	7	1	1
	130.	1	11	14	5	66	6	10	6	6	6	1	1
	131.	1	11	16	17	82	7	5	7	10	0	1	2
	132.	1	12	12	16	52	6	7	7	2	7	1	1
	133.	1	11	15	16	76	7	9	9	5	10	1	1
	134.	1	11	12	9	72	6	5	8	3	1	1	2
	135.	1	11	17	11	57	8	6	4	2	4	1	1
	136.	3	11	12	15	79	5	10	6	6	7	1	1
	137.	3	11	13	18	76	7	8	2	5	5	2	1
	138.	3	11	12	14	60	8	3	5	1	3	1	1
	139.	3	11	14	8	74	7	5	10	5	5	1	1

Raw Data Matrix

Cell I.D.	Subject Number	Variable Number 1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
2 2 2	140.	1	11	13	10	83	4	5	3	1	4	1	1
	141.	1	11	12	9	56	2	7	2	8	8	1	1
	142.	1	12	14	11	58	2	5	6	0	0	1	2
	143.	1	11	12	22	84	4	6	1	1	10	1	1
	144.	1	11	13	11	42	0	1	1	1	1	1	1
	145.	1	12	19	19	72	3	5	5	1	5	1	1
	146.	1	11	14	14	62	4	2	0	0	9	1	2
	147.	1	11	15	11	74	0	0	0	10	0	1	2
	148.	2	11	22	11	42	2	10	10	5	5	1	1
	149.	2	11	13	13	—	2	5	5	5	10	1	1
	150.	3	11	13	6	74	0	8	1	0	3	1	2
	151.	3	11	12	14	51	3	8	0	2	9	1	1
	152.	3	11	19	23	64	1	5	1	10	5	1	1
	153.	3	11	15	9	45	0	9	5	5	5	1	1
2 3 1	154.	1	12	19	17	65		8	9	5	9	1	1
	155.	1	12	12	18	59		1	10	10	5	1	1
	156.	1	11	13	9	81		7	7	4	8	1	1
	157.	1	11	18	12	52		8	5	3	9	1	1
	158.	1	11	14	18	67		2	6	2	9	1	1
	159.	1	12	14	12	57		3	10	6	8	1	1
	160.	1	12	15	14	68		2	3	1	10	1	1
	161.	1	11	17	20	71		1	10	5	10	1	1
	162.	1	11	12	13	70		9	6	2	9	1	1
	163.	1	11	15	13	62		8	8	6	5	1	1
	164.	1	11	14	10	63		6	10	5	10	1	1
	165.	1	11	15	12	61		5	5	2	5	1	1
	166.	2	11	16	5	72		8	8	9	6	1	1
	167.	3	11	20	24	44		10	6	6	5	1	1
	168.	3	11	13	13	63		9	7	8	9	1	1
	169.	3	11	13	15	69		6	9	0	10	1	2

Raw Data Matrix

Cell I.D.	Subject Number	Variable Number											
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
2 3 2	170.	1	11	12	15	69		10	4	3	8	1	2
	171.	1	11	15	15	41		5	5	5	10	1	1
	172.	1	11	17	27	59		9	5	1	10	1	1
	173.	1	11	15	17	47		2	8	0	8	1	1
	174.	1	11	14	26	52		2	0	4	5	1	1
	175.	1	12	14	16	73		3	2	0	6	1	—
	176.	1	11	13	11	79		8	8	3	10	1	1
	177.	1	11	12	13	69		5	6	3	6	1	1
	178.	1	12	12	13	82		5	0	5	5	1	2
	179.	2	11	14	9	70		5	10	0	5	1	1
	180.	3	11	12	15	53		7	9	3	8	1	1
	181.	3	11	15	10	56		5	5	5	5	1	1
	182.	3	11	12	8	69		10	10	0	10	1	1

VITA AUCTORIS

1944	-Born in Windsor, Ontario, to Joseph William and Sarah Graham (nee Myles) Garrett.
1949-1964	-Received primary and secondary education at J.E.Benson, Prince of Wales, H.D. Taylor, and Central Public Schools; and at W.C. Kennedy C. I. and Vincent Massey C. I., Windsor, Ontario.
1970	-Received B. A. (with high honours) in Psychology and Sociology from the University of Windsor, Windsor, Ontario.
1970	-Married June Paterson in Windsor, Ontario.
1974	-Received M. A. in Psychology from the University of Windsor, Windsor, Ontario.
1974-present	-Full-time graduate student at the University of Windsor.

Awards and Scholarships

1967-1970	-Placed on President's Role of Scholars during each year (two) of full-time undergraduate study. U.of Windsor.
1972-1973	-Received a Province of Ontario Graduate Fellowship and a University of Windsor Scholarship
1973-1974	-Received a second Province of Ontario Graduate Fellowship
1974-1975	-Received a third Province of Ontario Graduate Fellowship (declined) and a University of Windsor cash award (declined)
	-Received a Canada Council Doctoral Fellowship
1975-1976	-Received a Canada Council Doctoral Fellowship renewal

Papers Presented

Locus of control, task norms, and task outcome as factors in causal attribution. (with Henry L. Minton). Presented at the Canadian Psychological Association Convention, Quebec, P. Q., June 1975.

Attribution of the behaviour of self and others as a function of locus of control and task performance. (with Henry L. Minton). Paper to be presented at the Ontario Educational Research Council Convention, Toronto, Ontario, December, 1975.